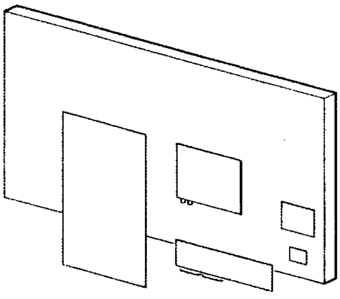
**Colour Television** **Chassis**

# LC4.2E
## AA

Service
Service
Service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# Service Manual

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# 1. Technical Specifications, Connections, and Chassis Overview

Index of this chapter:
1. Technical Specifications
2. Connections
3. Chassis Overview

**Note:** Figures below can deviate slightly from the actual situation, due to the different set executions.

## 1.1 Technical Specifications

### 1.1.1 Vision

| | |
|---|---|
| Display type | : LCD, S-IPS |
| | : 16:9 |
| Screen size | : 17 inch (44 cm) |
| | : 23 inch (59 cm) |
| | : 26 inch (66 cm) |
| Resolution (HxV) | : 1280(*3)x768 pixels |
| | : WXGA |
| Contrast ratio | : 400:1 |
| Light output | : 450 cd/m^2 |
| Viewing angle (HxV) | : 176x176 deg. |
| Tuning system | : PLL |
| Colour systems | : PAL B/G, D/K, I |
| | : SECAM B/G, D/K, L, L1 |
| Video playback | : NTSC 4.43 |
| | : NTSC 3.58 |
| | : NTSC Play Back |
| | : PAL 60 |
| | : PAL B/G Play Back |
| | : SECAM Play Back |
| Channel selections | : 100 presets |
| | : UVSH |
| Aerial input | : 75 ohm, IEC-type |
| Antenna | : 75 ohm, FM |
| Dimensions (WxHxD) in mm | : 17 inch: 578x375x240 |
| | : 23 inch: 690x433x240 |
| | : 26 inch: 788x504x270 |

### 1.1.2 Sound

| | |
|---|---|
| Sound systems | : FM/FM (5.5-5.74) |
| | : BI NICAM BG - 2CS BG |
| | : NICAM B/G (5.5-5.85) |
| | : NICAM D/K (6.5-5.85) (Hung) |
| | : NICAM I (6.0-6.52) |
| | : NICAM L (6.5(AM)-5.85) |
| Maximum power | : 17 inch: 2 x 3 W_rms |
| | : 23 inch: 2 x 5 W_rms |
| | : 26 inch: 2 x 5 W_rms |

### 1.1.3 Miscellaneous

| | |
|---|---|
| Power supply: | |
| Mains voltage | : 95 - 240 V_ac |
| Mains frequency | : 50 / 60 Hz |
| Ambient conditions: | |
| - Temperature range | : +5 to +40 deg. C |
| - Maximum humidity | : 90 % R.H. |
| Power consumption | |
| - Normal operation | : 17 inch: 55 W |
| | : 23 inch: 96 W |
| | : 26 inch: 110 W |
| - Standby | : < 3 W |

## 1.2 Connections

### 1.2.1 Rear Connections

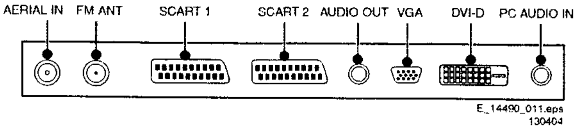

Figure 1-1 Rear connections

***Aerial - In***

| | | |
|---|---|---|
| - IEC-type | Coax, 75 ohm | ⊤ |

***FM Ant***

| | | |
|---|---|---|
| - IEC-type | Coax, 75 ohm | ⊤ |

***External 1: RGB/YUV - In and CVBS - In/Out***

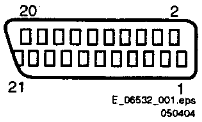

Figure 1-2 SCART connector

| | | | |
|---|---|---|---|
| 1 | - Audio - R | 0.5 V_rms / 1 kohm | ⊖→ |
| 2 | - Audio - R | 0.5 V_rms / 10 kohm | →⊖ |
| 3 | - Audio - L | 0.5 V_rms / 1 kohm | ⊖→ |
| 4 | - Audio - gnd | Ground | ⏚ |
| 5 | - Blue - gnd | Ground | ⏚ |
| 6 | - Audio - L | 0.5 V_rms / 10 kohm | →⊖ |
| 7 | - Blue/U - in | 0.7 V_pp / 75 ohm | →⊖ |
| 8 | - CVBS - status | 0 - 2 V: INT<br>4.5 - 7 V: EXT 16:9<br>9.5 - 12 V: EXT 4:3 | |
| 9 | - Green - gnd | Ground | ⏚ |
| 10 | - n.c. | | |
| 11 | - Green/Y - in | 0.7 V_pp / 75 ohm | →⊖ |
| 12 | - n.c. | | |
| 13 | - Red - gnd | Ground | ⏚ |
| 14 | - FBL - gnd | Ground | ⏚ |
| 15 | - Red/V - in | 0.7 V_pp / 75 ohm | →⊖ |
| 16 | - Status/FBL | 0 - 0.4 V: INT<br>1 - 3 V: EXT / 75 ohm | →⊖ |
| 17 | - Video | Ground | ⏚ |
| 18 | - Video | Ground | ⏚ |
| 19 | - CVBS - out | 1 V_pp / 75 ohm | ⊖→ |
| 20 | - CVBS - in | 1 V_pp / 75 ohm | →⊖ |
| 21 | - Shielding | Ground | ⏚ |

*External 2: RGB/YUV - In and CVBS - In/Out*

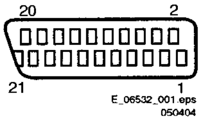

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Figure 1-3 SCART connector

| | | | |
|---|---|---|---|
| 1 | - Audio - R | 0.5 V_rms / 1 kohm | ⊖→ |
| 2 | - Audio - R | 0.5 V_rms / 10 kohm | →⊖ |
| 3 | - Audio - L | 0.5 V_rms / 1 kohm | ⊖→ |
| 4 | - Audio - gnd | Ground | ⏚ |
| 5 | - Blue - gnd | Ground | ⏚ |
| 6 | - Audio - L | 0.5 V_rms / 10 kohm | →⊖ |
| 7 | - n.c. | | →⊖ |
| 8 | - CVBS - status | 0 - 2 V: INT<br>4.5 - 7 V: EXT 16:9<br>9.5 - 12 V: EXT 4:3 | |
| 9 | - Green - gnd | Ground | ⏚ |
| 10 | - n.c. | | |
| 11 | - n.c. | | →⊖ |
| 12 | - n.c. | | |
| 13 | - Red - gnd | Ground | ⏚ |
| 14 | - FBL - gnd | Ground | ⏚ |
| 15 | - C - in | 0.3 V_pp / 75 ohm | →⊖ |
| 16 | - n.c. | | →⊖ |
| 17 | - Video | Ground | ⏚ |
| 18 | - Video | Ground | ⏚ |
| 19 | - CVBS - out | 1 V_pp / 75 ohm | ⊖→ |
| 20 | - CVBS/Y - in | 1 V_pp / 75 ohm | →⊖ |
| 21 | - Shielding | Ground | ⏚ |

*Audio - out*

| | | | |
|---|---|---|---|
| 3 | - Audio - R | 0.5 V_rms / 1 kohm | ⊖→⊖ |
| 2 | - Audio - L | 0.5 V_rms / 1 kohm | ⊖→⊖ |

*VGA*

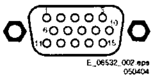
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Figure 1-4 VGA Connector

| | | | |
|---|---|---|---|
| 1 | - Red | 0.7 V_pp / 75 ohm | →⊖ |
| 2 | - Green | 0.7 V_pp / 75 ohm | →⊖ |
| 3 | - Blue | 0.7 V_pp / 75 ohm | →⊖ |
| 4 | - | Ground | ⏚ |
| 5 | - | Ground | ⏚ |
| 6 | - | Ground | ⏚ |
| 7 | - | Ground | ⏚ |
| 8 | - | Ground | ⏚ |
| 9 | - 5V_DC | +5 V_dc | →⊖ |
| 10 | - | Ground | ⏚ |
| 11 | - | Ground | ⏚ |
| 12 | - DDC_SDA | | →⊖⊖→ |
| 13 | - H-sync | 0 - 5 V | →⊖ |
| 14 | - V-sync | 0 - 5 V | →⊖ |
| 15 | - DDC_SCL | | →⊖ |

*DVI (for 23 and 26 inch models)*

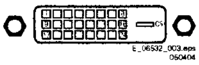
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Figure 1-5 DVI connector

| | | | |
|---|---|---|---|
| 1 | - RX2- | | →⊖ |
| 2 | - RX2+ | | →⊖ |
| 3 | - Ground | GND | ⏚ |
| 4 | - | n.c. | |
| 5 | - | n.c. | |
| 6 | - SCL_DVI | | ⊖→ |
| 7 | - SDA_DVI | | →⊖⊖→ |
| 8 | - | n.c. | |
| 9 | - RX1- | | →⊖ |
| 10 | - RX1+ | | →⊖ |
| 11 | - Ground | GND | ⏚ |
| 12 | - | n.c. | |
| 13 | - | n.c. | |
| 14 | - +5V | | |
| 15 | - Ground | GND | ⏚ |
| 16 | - + 5V Hot Plug | | |
| 17 | - RX0- | | →⊖ |
| 18 | - RX0+ | | →⊖ |
| 19 | - Ground | GND | ⏚ |
| 20 | - | n.c. | |
| 21 | - | n.c. | |
| 22 | - Ground | GND | ⏚ |
| 23 | - RXC+ | | →⊖ |
| 24 | - RXC- | | →⊖ |
| C5 | - Ground | GND | ⏚ |

*PC Audio - in*

| | | | |
|---|---|---|---|
| 3 | - Audio - R | 0.5 V_rms / 1 kohm | ⊖→◎ |
| 2 | - Audio - L | 0.5 V_rms / 1 kohm | ⊖→◎ |

### 1.2.2 Side connections

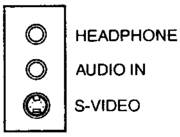

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Figure 1-6 Side connections

*Hosiden: SVHS - In*

| | | | |
|---|---|---|---|
| 1 | - Y | Ground | ⏚ |
| 2 | - C | Ground | ⏚ |
| 3 | - Y | 1 Vpp / 75 ohm | →⊖ |
| 4 | - C | 0.3 Vpp / 75 ohm | →⊖ |

*Mini Jack: Audio - in*

| | | | |
|---|---|---|---|
| 2 | - Audio - L | 0.5 Vrms / 10 kohm | →⊖◎ |
| 3 | - Audio - R | 0.5 Vrms / 10 kohm | →⊖◎ |

*Mini Jack: Headphone - Out*

- Headphone 32 - 600 ohm / 10 mW

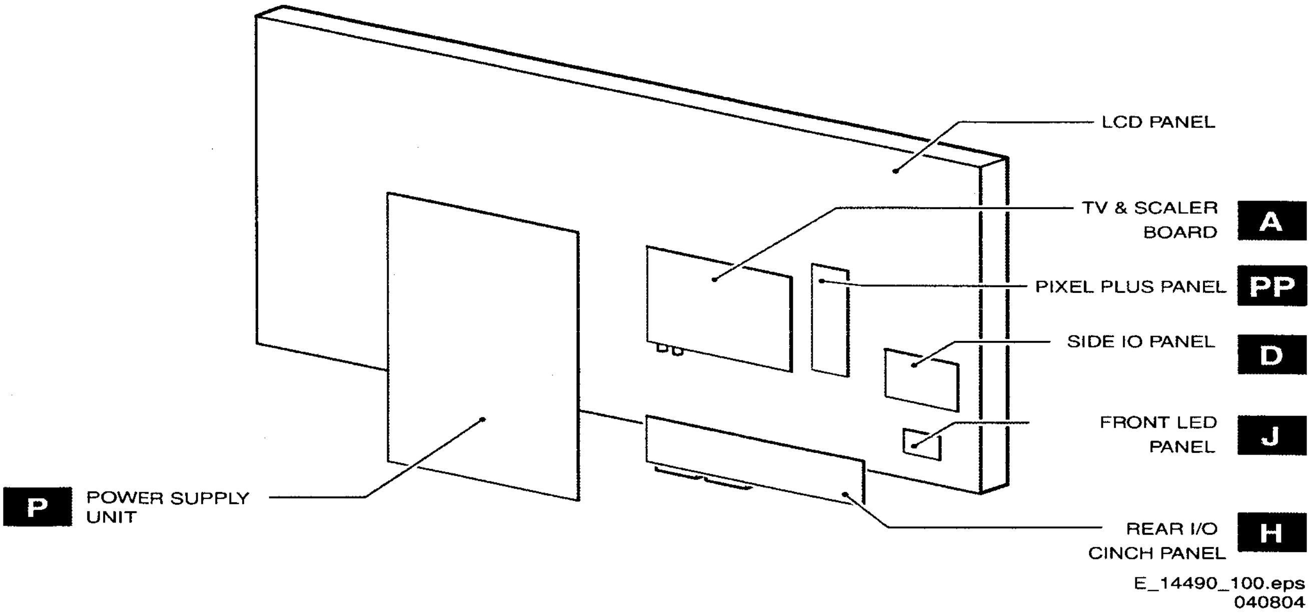
LCD PANEL
TV & SCALER BOARD
A
PIXEL PLUS PANEL
PP
SIDE IO PANEL
D
FRONT LED PANEL
J
REAR I/O CINCH PANEL
H
P
POWER SUPPLY UNIT
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Figure 1-7 Chassis Overview

# 2. Safety Instructions, Warnings, and Notes

## 2.1 Safety Instructions

Safety regulations require that **during** a repair:
- Connect the set to the Mains via an isolation transformer (> 800 VA).
- Replace safety components, indicated by the symbol ⚠, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.

Safety regulations require that **after** a repair, the set must be returned in its original condition. Pay in particular attention to the following points:
- Route the wire trees correctly and fix them with the mounted cable clamps.
- Check the insulation of the Mains lead for external damage.
- Check the strain relief of the Mains cord for proper function.
- Check the electrical DC resistance between the Mains plug and the secondary side (only for sets which have a Mains isolated power supply):
  1. Unplug the Mains cord and connect a wire between the two pins of the Mains plug.
  2. Set the Mains switch to the "on" position (keep the Mains cord unplugged!).
  3. Measure the resistance value between the pins of the Mains plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 Mohm and 12 Mohm.
  4. Switch "off" the set, and remove the wire between the two pins of the Mains plug.
- Check the cabinet for defects, to avoid touching of any inner parts by the customer.

## 2.2 Warnings

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD ⚠). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential. Available ESD protection equipment:
  - Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671.
  - Wristband tester 4822 344 13999.
- Be careful during measurements in the high voltage section.
- Never replace modules or other components while the unit is switched "on".
- When you align the set, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

## 2.3 Notes

### 2.3.1 General

- Measure the voltages and waveforms with regard to the chassis (= tuner) ground (⏚), or hot ground (⏚), depending on the tested area of circuitry. The voltages and waveforms shown in the diagrams are indicative. Measure them in the Service Default Mode (see chapter 5) with a colour bar signal and stereo sound (L: 3 kHz, R: 1 kHz unless stated otherwise) and picture carrier at 475.25 MHz for PAL, or 61.25 MHz for NTSC (channel 3).
- Where necessary, measure the waveforms and voltages with (⊓) and without (⊗) aerial signal. Measure the voltages in the power supply section both in normal operation (⏽) and in standby (⏻). These values are indicated by means of the appropriate symbols.
- The semiconductors indicated in the circuit diagram and in the parts lists, are interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.
- Manufactured under license from Dolby Laboratories. "Dolby", "Pro Logic" and the "double-D symbol", are trademarks of Dolby Laboratories.

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PRO • LOGIC
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240604

Figure 2-1 Dolby PL Symbol

### 2.3.2 Schematic Notes

- All resistor values are in ohms and the value multiplier is often used to indicate the decimal point location (e.g. 2K2 indicates 2.2 kohm).
- Resistor values with no multiplier may be indicated with either an "E" or an "R" (e.g. 220E or 220R indicates 220 ohm).
- All capacitor values are given in micro-farads ($\mu$= x$10^{-6}$), nano-farads (n= x$10^{-9}$), or pico-farads (p= x$10^{-12}$).
- Capacitor values may also use the value multiplier as the decimal point indication (e.g. 2p2 indicates 2.2 pF).
- An "asterisk" (*) indicates component usage varies. Refer to the diversity tables for the correct values.
- The correct component values are listed in the Electrical Replacement Parts List. Therefore, always check this list when there is any doubt.

### 2.3.3 Rework on BGA (Ball Grid Array) ICs

*General*
Although (LF)BGA assembly yields are very high, there may still be a requirement for component rework. By rework, we mean the process of removing the component from the PWB and replacing it with a new component. If an (LF)BGA is removed from a PWB, the solder balls of the component are deformed drastically so the removed (LF)BGA has to be discarded.

*Device Removal*
As is the case with any component that, it is essential when removing an (LF)BGA, the board, tracks, solder lands, or surrounding components are not damaged. To remove an (LF)BGA, the board must be uniformly heated to a temperature close to the reflow soldering temperature. A uniform temperature reduces the chance of warping the PWB.
To do this, we recommend that the board is heated until it is certain that all the joints are molten. Then carefully pull the component off the board with a vacuum nozzle. For the appropriate temperature profiles, see the IC data sheet.

*Area Preparation*
When the component has been removed, the vacant IC area must be cleaned before replacing the (LF)BGA.
Removing an IC often leaves varying amounts of solder on the mounting lands. This excessive solder can be removed with either a solder sucker or solder wick. The remaining flux can be removed with a brush and cleaning agent.
After the board is properly cleaned and inspected, apply flux on the solder lands and on the connection balls of the (LF)BGA.
**Note:** Do not apply solder paste, as this has shown to result in problems during re-soldering.

***Device Replacement***

The last step in the repair process is to solder the new component on the board. Ideally, the (LF)BGA should be aligned under a microscope or magnifying glass. If this is not possible, try to align the (LF)BGA with any board markers. To reflow the solder, apply a temperature profile according to the *IC data sheet*. So as not to damage neighbouring components, it may be necessary to reduce some temperatures and times.

***More Information***

For more information on how to handle BGA devices, visit this URL: *http://www.atyourservice.ce.philips.com* (needs subscription). After login, select "Magazine", then go to "Workshop Information". Here you will find Information on how to deal with BGA-ICs.

### 2.3.4 Lead Free Solder

Some PWBs in this chassis are "lead-free **prepared**". This is indicated on the PWB by the PHILIPS lead-free logo (either by a service-printing or by a sticker). It does not mean that lead-free solder is actually used!

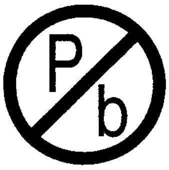

**Figure 2-2 Lead-free logo**

### 2.3.5 Practical Service Precautions

- **It makes sense to avoid exposure to electrical shock.** While some sources are expected to have a possible dangerous impact, others of quite high potential are of limited current and are sometimes held in less regard.
- **Always respect voltages**. While some may not be dangerous in themselves, they can cause unexpected reactions - reactions that are best avoided. Before reaching into a powered TV set, it is best to test the high voltage insulation. It is easy to do, and is a good service precaution.

# 3. Directions for Use

You can download this information from the following website:
http://www.philips.com/support

# 4. Mechanical Instructions

**Index of this chapter:**

1. Service Position
2. Rear Cover Removal
3. Power Supply Unit Removal
4. TV & Scaler Board Removal
5. I/O Panel Removal
6. Side I/O & Keyboard Panel and Front LED Panel Removal
7. Pixel Plus Panel Removal
8. Exchanging the LCD Panel
9. Re-assembly

**Note:** Figures below can deviate from the actual situation, due to different set executions.

**Note:** To diagnose the set with ComPair it is **not** needed to open the set entirely.

1. *Manually unlock and remove the cover cap (1).* See figure "TV set rear view".
2. Break away the protective plate (2) at the I/O panel bracket to get access to the needed plugs. See figure "Protective plate".

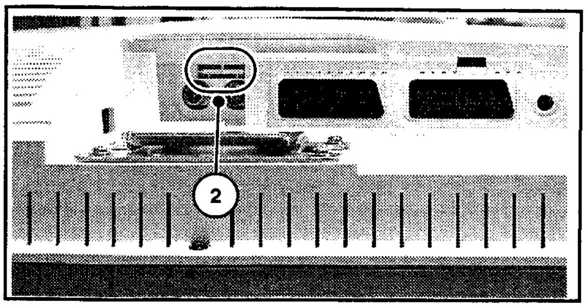

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Figure 4-1 Protective plate

## 4.1 Service Position

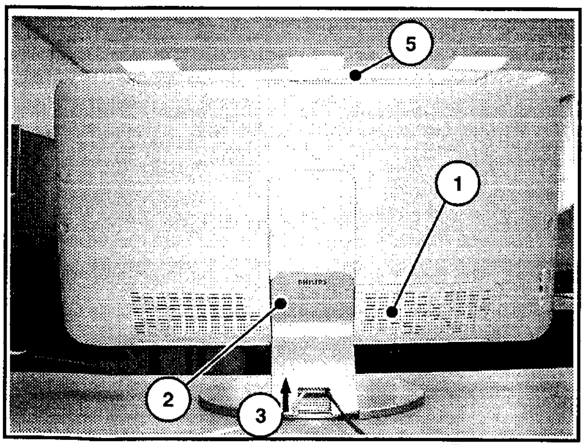

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Figure 4-2 TV set rear view

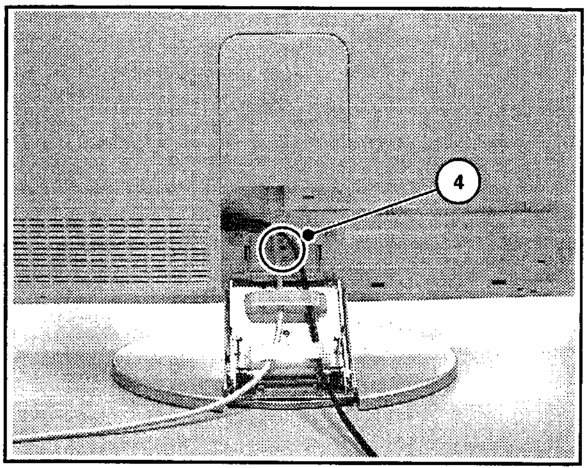

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Figure 4-3 TV stand removal

1. Carefully pull upwards the cover plate (2) (from it's left side) to unlock it (3) and remove the plate from the stand.
2. Unplug the AC power and the antenna cables.
3. Be sure to remove the coin slotted mounting screw (4) from the stand.
4. Carefully lift the TV from the swivel base (it uses a vertical sliding mechanism).
5. Place the TV upside down on a tabletop (use a protection sheet or foam bars). Take care, that this is flat and free from obstacles like screws, to prevent damaging the fragile LCD screen.

### 4.1.1 Foam Bars

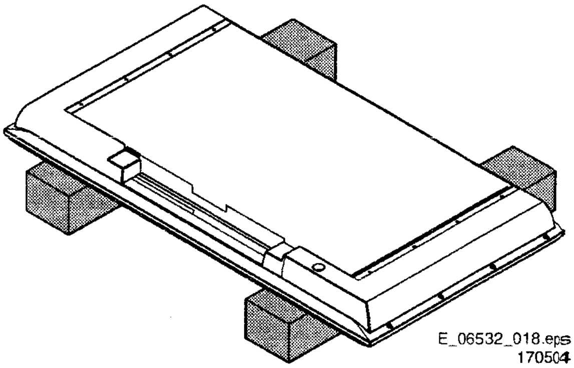

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Figure 4-4 Foam bars

The foam bars (order code 3122 785 90580) can be used for all types and sizes of Flat TVs. By laying the plasma or LCD TV flat on the (ESD protective) foam bars, a stable situation is created to perform measurements and alignments. By placing a mirror under the TV, you can easily monitor the screen.

## 4.2 Rear Cover Removal

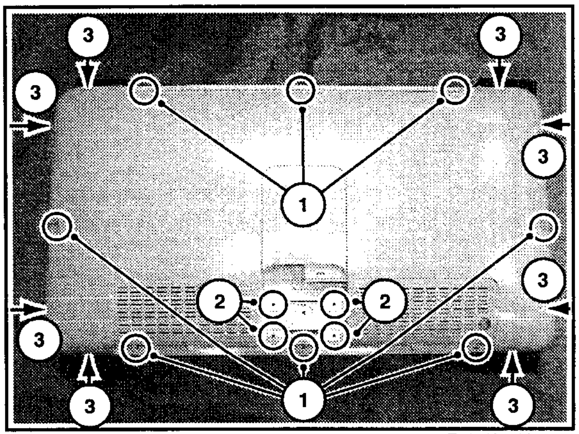

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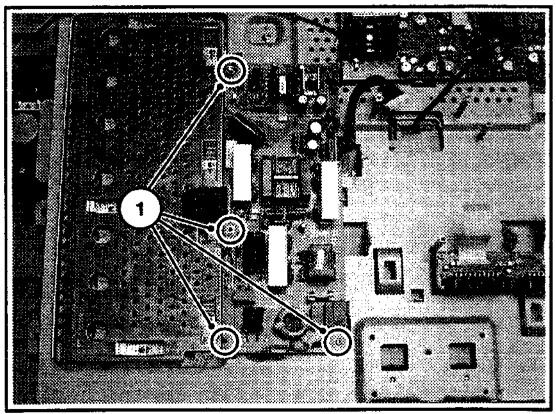
Figure 4-5 Rear cover removal

1. Manually unlock and remove the top cover cap (5). See Figure: "TV set rear view".
2. Make sure all power-, audio-, video- and coax- cables are unplugged.
3. Remove all Torx screws (1) around the edges of the rear cover.
4. Remove the four silver coloured Torx screws (2) around the stand holder. See figure "Rear cover removal".
5. Carefully use a flat screwdriver to release the clamps (3). See figure "Rear cover removal".
6. Remove the rear cover and store it in a safe place.

**Note:** avoid holding the button-area during removal (it can be easily damaged).

## 4.3 Power Supply Unit Removal

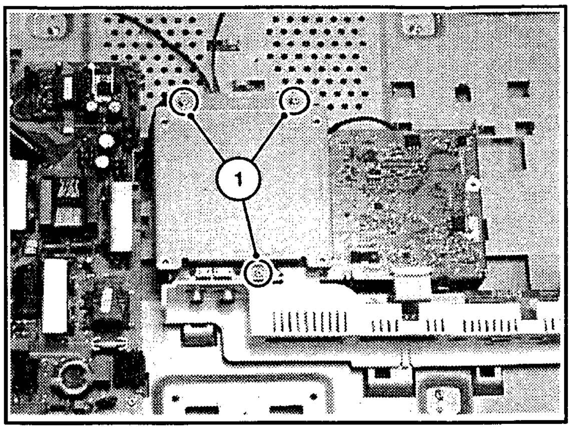


E_14520_005.eps
100204

Figure 4-6 Power supply unit

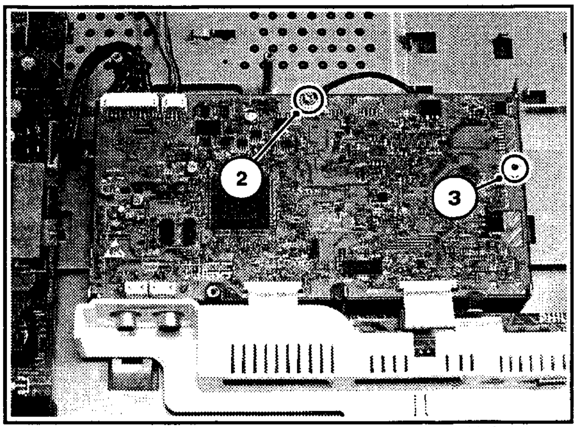
1. Disconnect all cables from the Power supply unit.
2. Remove all mounting screws (1) from the Power supply unit.
3. Take out the Power supply unit.

## 4.4 TV & Scaler Board Removal



E_14490_006.eps
130404

Figure 4-7 : TV & Scaler board shield removal

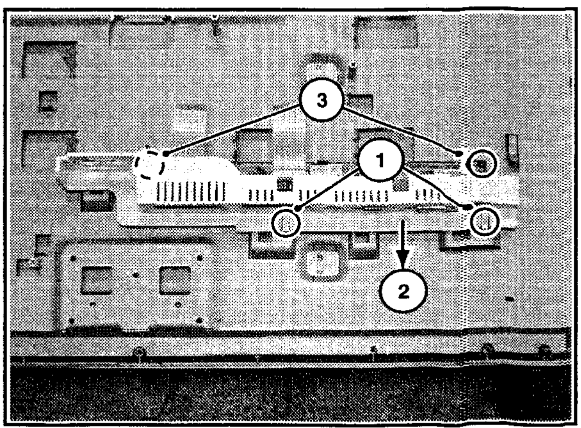


E_14490_007.eps
130404

Figure 4-8 : TV & Scaler board removal

1. Disconnect all cables from the TV & Scaler board.
2. Remove all shield mounting screws (1) and remove the shield.
3. Remove the screw from the grounding cable (2).
4. Remove the mounting screw (3) and remove the board.

## 4.5 I/O Panel Removal



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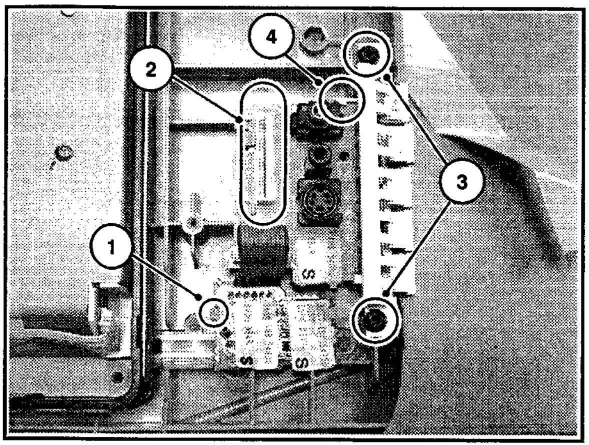
130404

Figure 4-9 I/O panel removal

1. Release the two clamps (1) at the I/O panel bracket. Carefully pull the bracket in the direction (2), as shown at the figure "I/O panel removal", and remove it.
2. Disconnect all cables from the I/O panel.
3. Remove all mounting screws from the I/O panel (3).
4. Take out the I/O panel.

## 4.6 Side I/O & Keyboard Panel and Front LED Panel Removal

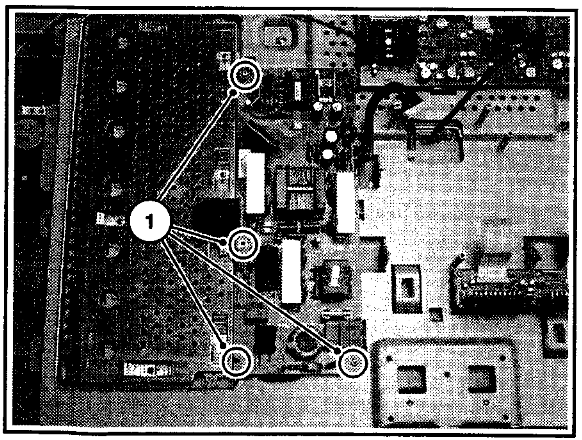


E_14490_009.eps
130404

**Figure 4-10 Side I/O & Keyboard panel and Front LED panel removal**

1. Release the clamp (1) and take out the Front LED panel.
2. Disconnect the cable (2) from the Side I/O & Keyboard panel.
3. Remove all mounting screws (3) from the Side I/O & Keyboard panel bracket.
4. Unlock this unit by shifting it to the outside direction of the monitor.
5. Release the clamp (4) and take out the Side I/O & Keyboard panel from the bracket.

## 4.7 Pixel Plus Panel Removal

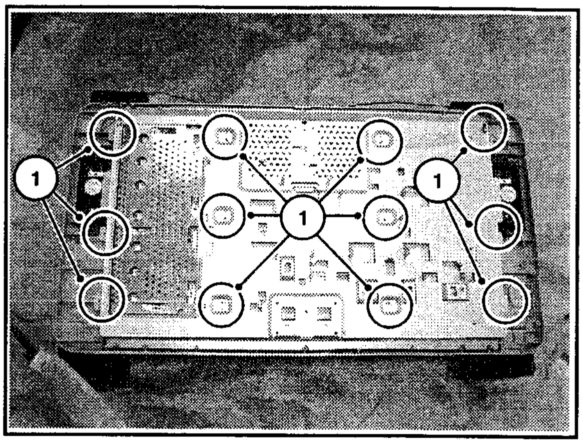


E_14520_005.eps
100204

**Figure 4-11 Pixel Plus panel removal**

1. Disconnect all cables from the Pixel Plus panel.
2. Remove all mounting screws from the Pixel Plus panel.
3. Take out the Pixel Plus panel.

## 4.8 Exchanging the LCD Panel



E_14490_010.eps
130404

**Figure 4-12 Exchanging the LCD panel**

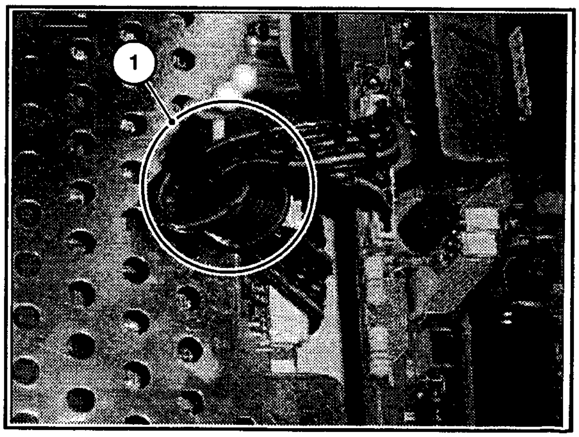
1. Disconnect all cables from the LCD Panel.
2. Remove all mounting screws (1) from the metal cover.
3. Lift and take off the metal cover.
4. Now you can exchange the LCD panel.

## 4.9 Re-Assembly

To re-assemble the whole set, do all processes in reverse order.

**Notes:**

- Do **not** forget to replace the ground cable of the TV & Scaler board, while mounting the screw at the board topside. See figure "TV & Scaler board removal".
- Make sure the ferrite ring (1) is properly tightened to the clip (this is valid only for 26 inch sets).



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070504

**Figure 4-13 Ferrite ring**

# 5. Service Modes, Error Codes, and Fault Finding

Index of this chapter:

1. Test Points
2. Service Modes
3. Problems and Solving Tips (related to CSM)
4. ComPair
5. Error Codes
6. The Blinking LED Procedure
7. Fault Finding and Repair Tips
8. Power Supply

## 5.1 Test Points

This chassis is equipped with test points in the service printing. In the schematics test points are identified with a rectangle box around Fxxx or Ixxx. These test points are specifically mentioned in the service manual as "half moons" with a dot in the centre.
Perform measurements under the following conditions:

- Television set in Service Default Alignment Mode.
- Video input: Colour bar signal.
- Audio input: 3 kHz left channel, 1 kHz right channel.

## 5.2 Service Modes

Service Default mode (SDM) and Service Alignment Mode (SAM) offers several features for the service technician, while the Customer Service Mode (CSM) is used for communication between the call centre and the customer.

This chassis also offers the option of using ComPair, a hardware interface between a computer and the TV chassis. It offers the abilities of structured troubleshooting, error code reading, and software version readout for all chassis. *Minimum requirements for ComPair:* a Pentium processor, a Windows OS, and a CD-ROM drive (see also paragraph "ComPair").

### 5.2.1 Service Default Mode (SDM)

***Purpose***

- To create a predefined setting for measurements to be made.
- To override software protections.
- To start the blinking LED procedure.
- To inspect the error buffer.
- To check the life timer.

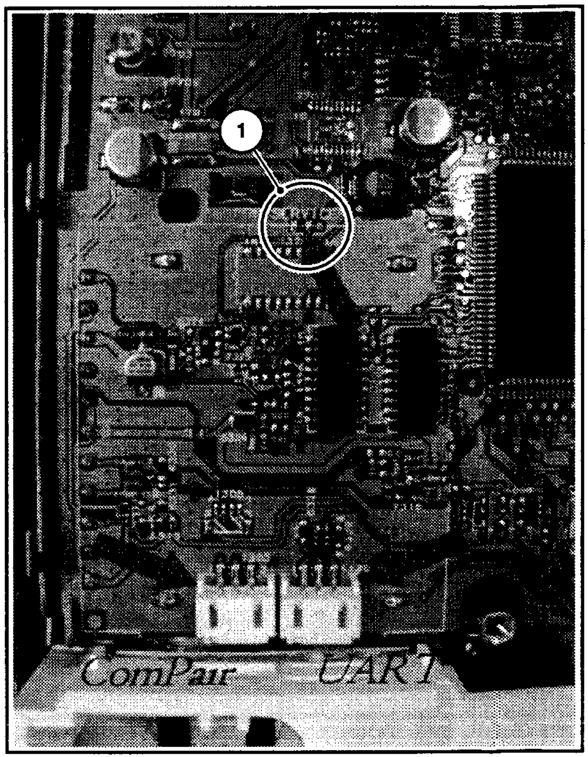
***Specifications***

- Tuning frequency: 475.25 MHz.
- Colour system: PAL-BG.
- All picture settings at 50% (brightness, colour contrast, hue).
- Bass, treble and balance at 50 %; volume at 25 %.
- All service-unfriendly modes (if present) are disabled. The service unfriendly modes are:
  - Timer / Sleep timer.
  - Child / parental lock.
  - Blue mute.
  - Hotel / hospital mode.
  - Auto shut off (when no "IDENT" video signal is received for 15 minutes).
  - Skipping of non-favourite presets / channels.
  - Auto-storage of personal presets.
  - Auto user menu time-out.
  - Auto Volume Levelling (AVL).

***How to enter***

To enter SDM, use one of the following methods:

- Press the following key sequence on the remote control transmitter: "062596" directly followed by the MENU button (do not allow the display to time out between entries while keying the sequence).
- Short "Service" jumpers on the TV board during cold start and apply mains (see Figure "Service jumpers"). Then press the mains button (remove the short after start-up).
**Caution**: Entering SDM by shorting "Service" jumpers will override the +8V-protection. Do this only for a short period. When doing this, the service-technician must know exactly what he is doing, as it could damage the television set.
- Or via ComPair.



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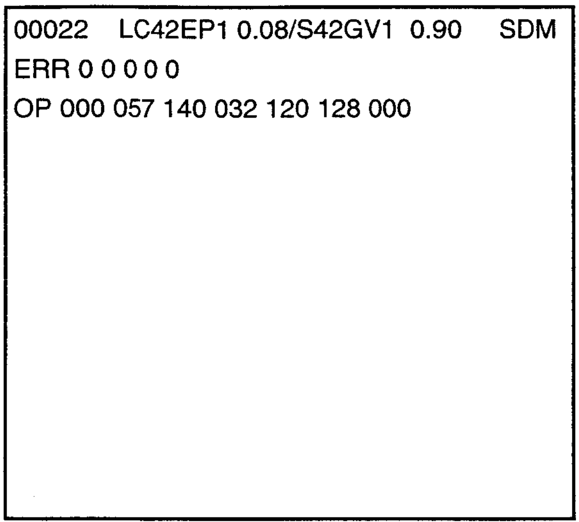
070504

Figure 5-1 E Service jumpers

After entering SDM, the following screen is visible, with SDM in the upper right corner of the screen to indicate that the television is in Service Default Alignment Mode.



```
00022   LC42EP1 0.08/S42GV1  0.90    SDM
ERR 0 0 0 0 0
OP 000 057 140 032 120 128 000
```

E_14490_051.eps
220404

**Figure 5-2 SDM menu**

***How to navigate***

Use one of the following methods:

- When you press the MENU button on the remote control, the set will switch on the normal user menu in the SDM mode.
- On the TV, press and hold the VOLUME DOWN and press the CHANNEL DOWN for a few seconds, to switch from SDM to SAM and reverse.

***How to exit***

Switch the set to STANDBY by pressing the mains button on the remote control transmitter or the television set.
If you turn the television set off by removing the mains (i.e., unplugging the television) without using the mains button, the television set will remain in SDM when mains is re-applied, and the error buffer is not cleared.

### 5.2.2 Service Alignment Mode (SAM)

***Purpose***

- To change option settings.
- To display / clear the error code buffer.
- To perform alignments.

***Specifications***

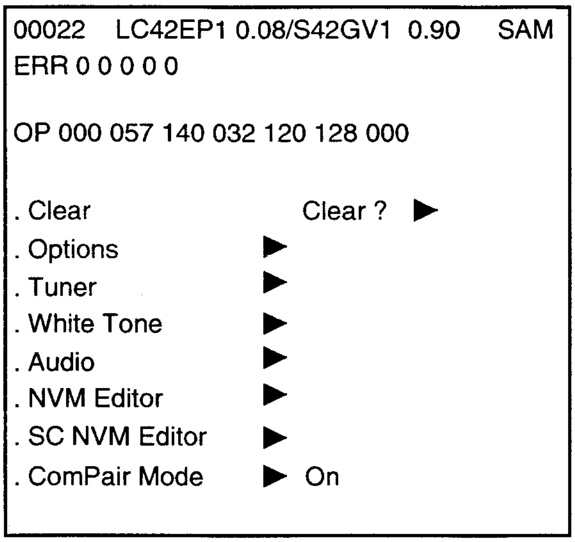
- Operation hours counter (maximum five digits displayed).
- Software version, Error codes, and Option settings display.
- Error buffer clearing.
- Option settings.
- AKB switching.
- Software alignments (Tuner, White Tone, Geometry & Audio).
- NVM Editor.
- ComPair Mode switching.

***How to enter***

To enter SAM, use one of the following methods:

- Press the following key sequence on the remote control transmitter: "062596" directly followed by the OSD/ STATUS button (do not allow the display to time out between entries while keying the sequence).
- Or via ComPair.

After entering SAM, the following screen is visible, with SAM in the upper right corner of the screen to indicate that the television is in Service Alignment Mode.



```
00022   LC42EP1 0.08/S42GV1  0.90    SAM
ERR 0 0 0 0 0

OP 000 057 140 032 120 128 000

. Clear                   Clear ?  ►
. Options              ►
. Tuner                ►
. White Tone           ►
. Audio                ►
. NVM Editor           ►
. SC NVM Editor        ►
. ComPair Mode         ►  On
```

E_14490_052eps
220404

**Figure 5-3 SAM menu**

***Menu explanation***

1. **LLLLL.** This represents the run timer. The run timer counts normal operation hours, but does not count standby hours.
2. **AAAABCD-X.Y/ EEEEEE F.GG.** This is the software identification of the main microprocessor followed by the software identification for the scaler IC:
   - **A**= the project name (LC42).
   - **B**= the region: E= Europe, A= Asia Pacific, U= NAFTA, L= LATAM.
   - **C**= the software diversity:
     - **Europe:** T= 1 page TXT, F= Full TXT, V= Voice control.
     - **LATAM and NAFTA:** N= Stereo non-dBx, S= Stereo dBx.
     - **Asian Pacific:** T= TXT, N= non-TXT, C= NTSC.
     - **ALL regions:** M= mono, D= DVD, Q= Mk2.
   - **D**= the language cluster number.
   - **X**= the main software version number (updated with a major change that is incompatible with previous versions).
   - **Y**= the sub software version number (updated with a minor change that is compatible with previous versions).
   - **EEEEEE**= the scaler sw cluster
   - **F**= the main sw version no.
   - **GG**= the sub-version no.
3. **SAM.** Indication of the Service Alignment Mode.
4. **Error Buffer.** Shows all errors detected since the last time the buffer was erased. Five errors possible.
5. **Option Bytes.** Used to set the option bytes. See "Options" in the Alignments section for a detailed description. Seven codes are possible.
6. **Clear.** Erases the contents of the error buffer. Select the CLEAR menu item and press the MENU RIGHT key. The content of the error buffer is cleared.
7. **Options.** Used to set the option bits. See "Options" in the Alignments section for a detailed description.
8. **Tuner.** Used to align the tuner. See "Tuner" in the Alignments section for a detailed description.
9. **White Tone.** Used to align the white tone. See "White Tone" in the Alignments section for a detailed description.
10. **Audio.** No audio alignment is necessary for this television set.

11. **NVM Editor.** Can be used to change the NVM data in the television set. See table "NVM data" further on.
12. **SC NVM Editor.** Can be used to edit Scaler NVM.
13. **ComPaIr.** Can be used to switch on the television to In System Programming (ISP) mode, for software uploading via ComPair.
    **Caution:** When this mode is selected without ComPair connected, the TV will be blocked. Remove the AC power to reset the TV.

*How to navigate*

- In SAM, select menu items with the MENU UP/DOWN keys on the remote control transmitter. The selected item will be highlighted. When not all menu items fit on the screen, use the MENU UP/DOWN keys to display the next / previous menu items.
- With the MENU LEFT/RIGHT keys, it is possible to:
  - Activate the selected menu item.
  - Change the value of the selected menu item.
  - Activate the selected submenu.
- In SAM, when you press the MENU button twice, the set will switch to the normal user menus (with the SAM mode still active in the background). To return to the SAM menu press the MENU or STATUS/EXIT button.
- When you press the MENU key in while in a submenu, you will return to the previous menu.

*How to store SAM settings*

To store the settings changed in SAM mode, leave the top level SAM menu by using the POWER button on the remote control transmitter or the television set.

*How to exit*

Switch the set to STANDBY by pressing the mains button on the remote control transmitter or the television set.
If you turn the television set "off" by removing the mains (i.e., unplugging the television) without using the mains button, the television set will remain in SAM when mains is re-applied, and the error buffer is not cleared.

### 5.2.3 Customer Service Mode (CSM)

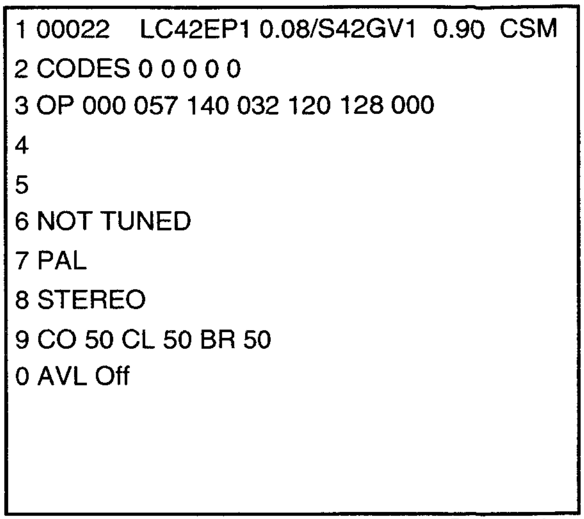
*Purpose*

The Customer Service Mode shows error codes and information on the TV's operation settings. The call centre can instruct the customer (by telephone) to enter CSM in order to identify the status of the set. This helps the call centre to diagnose problems and failures in the TV set before making a service call.
The CSM is a read-only mode; therefore, modifications are not possible in this mode.

*How to enter*

To enter CSM, press the following key sequence on the remote control transmitter: "123654" (do not allow the display to time out between entries while keying the sequence).

Upon entering the Customer Service Mode, the following screen will appear:



```
1 00022   LC42EP1 0.08/S42GV1  0.90  CSM
2 CODES 0 0 0 0 0
3 OP 000 057 140 032 120 128 000
4
5
6 NOT TUNED
7 PAL
8 STEREO
9 CO 50 CL 50 BR 50
0 AVL Off
```

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230404

**Figure 5-4 CSM menu**

*Menu explanation*

1. Indication of the decimal value of the operation hours counter, Software identification of the main microprocessor (see "Service Default or Alignment Mode" for an explanation), and the service mode (CSM= Customer Service Mode).
2. Displays the last five errors detected in the error code buffer.
3. Displays the option bytes.
4. Displays the type number version of the set.
5. Reserved item for P3C call centres (AKBS stands for Advanced Knowledge Base System).
6. Indicates the television is receiving an "IDENT" signal on the selected source. If no "IDENT" signal is detected, the display will read "NOT TUNED"
7. Displays the detected Colour system (e.g. PAL/NTSC).
8. Displays the detected Audio (e.g. stereo/mono).
9. Displays the picture setting information.
10. Displays the sound setting information.

*How to exit*

To exit CSM, use one of the following methods:

- Press the MENU, STATUS/EXIT, or POWER button on the remote control transmitter.
- Press the POWER button on the television set.

## 5.3 Problems and Solving Tips Related to CSM

### 5.3.1 Picture Problems

**Note**: The problems described below are all related to the TV settings. The procedures used to change the value (or status) of the different settings are described.

***Picture too dark or too bright***

*If:*

- The picture improves when you press the AUTO PICTURE button on the remote control transmitter, or
- The picture improves when you enter the Customer Service Mode,

*Then:*

1. Press the AUTO PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the MENU UP/DOWN keys to highlight the PICTURE sub menu.
4. Press the MENU LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the MENU UP/DOWN keys (if necessary) to select BRIGHTNESS.
6. Press the MENU LEFT/RIGHT keys to increase or decrease the BRIGHTNESS value.
7. Use the MENU UP/DOWN keys to select PICTURE.
8. Press the MENU LEFT/RIGHT keys to increase or decrease the PICTURE value.
9. Press the MENU button on the remote control transmitter twice to exit the user menu.
10. The new PERSONAL preference values are automatically stored.

***White line around picture elements and text***

*If:*

The picture improves after you have pressed the AUTO PICTURE button on the remote control transmitter,

*Then:*

1. Press the AUTO PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the MENU UP/DOWN keys to highlight the PICTURE sub menu.
4. Press the MENU LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the MENU UP/DOWN keys to select SHARPNESS.
6. Press the MENU LEFT key to decrease the SHARPNESS value.
7. Press the MENU button on the remote control transmitter twice to exit the user menu.
8. The new PERSONAL preference value is automatically stored.

***Snowy picture***

Check CSM line 6. If this line reads “Not Tuned”, check the following:

- Antenna not connected. Connect the antenna.
- No antenna signal or bad antenna signal. Connect a proper antenna signal.
- The tuner is faulty (in this case line 2, the Error Buffer line, will contain error number 10). Check the tuner and replace/repair the tuner if necessary.

***Black and white picture***

*If:*

- The picture improves after you have pressed the AUTO PICTURE button on the remote control transmitter,

*Then:*

1. Press the AUTO PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the MENU UP/DOWN keys to highlight the PICTURE sub menu.
4. Press the MENU LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the MENU UP/DOWN keys to select COLOUR.
6. Press the MENU RIGHT key to increase the COLOUR value.
7. Press the MENU button on the remote control transmitter twice to exit the user menu.
8. The new PERSONAL preference value is automatically stored.

***Menu text not sharp enough***

*If:*

- The picture improves after you have pressed the AUTO PICTURE button on the remote control transmitter,

*Then:*

1. Press the AUTO PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the MENU UP/DOWN keys to highlight the PICTURE sub menu.
4. Press the MENU LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the MENU UP/DOWN keys to select PICTURE.
6. Press the MENU LEFT key to decrease the PICTURE value.
7. Press the MENU button on the remote control transmitter twice to exit the user menu.
8. The new PERSONAL preference value is automatically stored.

## 5.4 ComPair

### 5.4.1 Introduction

ComPair (Computer Aided Repair) is a service tool for Philips Consumer Electronics products. ComPair is a further development on the European DST (service remote control), which allows faster and more accurate diagnostics. ComPair has three big advantages:
ComPair helps you to quickly get an understanding on how to repair the chassis in a short time by guiding you systematically through the repair procedures.
ComPair allows very detailed diagnostics (on I2C level) and is therefore capable of accurately indicating problem areas. You do not have to know anything about I2C commands yourself because ComPair takes care of this.
ComPair speeds up the repair time since it can automatically communicate with the chassis (when the microprocessor is working) and all repair information is directly available. When ComPair is installed together with the SearchMan electronic manual of the defective chassis, schematics and PWBs are only a mouse click away.

### 5.4.2 Specifications

ComPair consists of a Windows based faultfinding program and an interface box between PC and the (defective) product. The ComPair interface box is connected to the PC via a serial or RS232 cable.
In this chassis, the ComPair interface box and the TV communicate via a bi-directional service cable via the service connector.

The ComPair faultfinding program is able to determine the problem of the defective television. ComPair can gather diagnostic information in two ways:

- **Automatic** (by communication with the television): ComPair can automatically read out the contents of the entire error buffer. Diagnosis is done on I2C level. ComPair can access the I2C bus of the television. ComPair can send and receive I2C commands to the micro controller of the television. In this way, it is possible for ComPair to communicate (read and write) to devices on the I2C busses of the TV-set.

- **Manually** (by asking questions to you): Automatic diagnosis is only possible if the micro controller of the television is working correctly and only to a certain extend. When this is not the case, ComPair will guide you through the faultfinding tree by asking you questions (e.g. *Does the screen give a picture? Click on the correct answer: YES / NO*) and showing you examples (e.g. *Measure test-point I7 and click on the correct waveform you see on the oscilloscope*). You can answer by clicking on a link (e.g. text or a waveform picture) that will bring you to the next step in the faultfinding process.

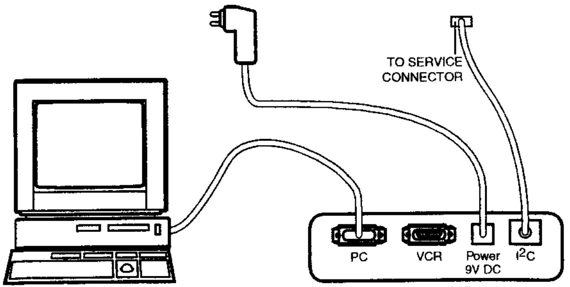
By a combination of automatic diagnostics and an interactive question / answer procedure, ComPair will enable you to find most problems in a fast and effective way.

Beside fault finding, ComPair provides some **additional features** like:

- Up- or downloading of pre-sets.
- Managing of pre-set lists.
- If both ComPair and SearchMan (Electronic Service Manual) are installed, all the schematics and the PWBs of the set are available by clicking on the appropriate hyperlink. **Example**: *Measure the DC-voltage on capacitor C2568 (Schematic/Panel) at the Mono-carrier.*
  - Click on the 'Panel' hyperlink to automatically show the PWB with a highlighted capacitor C2568.
  - Click on the 'Schematic' hyperlink to automatically show the position of the highlighted capacitor.

### 5.4.3 How To Connect

1. First, install the ComPair Browser software (see the Quick Reference Card for installation instructions).
2. Connect the RS232 interface cable between a free serial (COM) port of your PC and the PC connector (marked with 'PC') of the ComPair interface.
3. Connect the mains adapter to the supply connector (marked with 'POWER 9V DC') of the ComPair interface.
4. Switch the ComPair interface "off".
5. Switch the television set "off" with the mains switch.
6. Connect the ComPair interface cable with the connector on the rear side of the ComPair interface (marked with 'I2C') and the additional ComPair interface cable. Connect the other side of the additional ComPair interface cable with the ComPair (or *Service*) connector at the rear side of the TV.
7. Plug the mains adapter in a mains outlet, and switch the interface "on". The green and red LEDs light up together. The red LED extinguishes after approx. 1 second while the green LED remains lit.
8. Start the ComPair program and read the 'Introduction' chapter.



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190204

**Figure 5-5 ComPair Interface connection**

### 5.4.4 How To Order

ComPair order codes (EU/AP/LATAM):

- Starter kit ComPair32/SearchMan32 software and ComPair interface (excl. transformer): 3122 785 90450.
- ComPair interface (excluding transformer): 4822 727 21631.
- Starter kit ComPair32 software (registration version): 3122 785 60040.
- Starter kit SearchMan32 software: 3122 785 60050.
- ComPair32 CD (update): 3122 785 60070 (year 2002, 3122 785 60110 (year 2003).
- SearchMan32 CD (update): 3122 785 60080 (year 2002), 3122 785 60120 (year 2003), 3122 785 60130 (year 2004).
- ComPair interface cable: 3122 785 90004.
- ComPair firmware upgrade IC: 3122 785 90510.
- Transformer (non-UK): 4822 727 21632.
- Transformer UK: 4822 727 21633.
- Additional ComPair interface cable: 3139 131 0379.

**Note:** If you encounter any problems, contact your local support desk.

## 5.5 Error Codes

The error code buffer contains all errors detected since the last time the buffer was erased. The buffer is written from left to right. When an error occurs that is not yet in the error code buffer, it is displayed at the left side and all other errors shift one position to the right.

### 5.5.1 How To Read The Error Buffer

You can read the error buffer in 3 ways:

- On screen via the SAM (if you have a picture).
  **Examples:**
  - ERROR: 0 0 0 0 0 : No errors detected
  - ERROR: 6 0 0 0 0 : Error code 6 is the last and only detected error
  - ERROR: 9 6 0 0 0 : Error code 6 was detected first and error code 9 is the last detected (newest) error
- Via the blinking LED procedure (when you have no picture). See "The Blinking LED Procedure".
- Via ComPair.

### 5.5.2 How To Clear The Error Buffer

The error code buffer is cleared in the following cases:

- By using the CLEAR command in the SAM menu:
  - To enter SAM, press the following key sequence on the remote control transmitter: "062596" directly followed by the OSD/STATUS button (do not allow the display to time out between entries while keying the sequence).
  - Make sure the menu item CLEAR is highlighted. Use the MENU UP/DOWN buttons, if necessary.
  - Press the MENU RIGHT button to clear the error buffer. The text on the right side of the "CLEAR" line will change from "CLEAR?" to "CLEARED"
- If the contents of the error buffer have not changed for 50 hours, the error buffer resets automatically.

**Note:** If you exit SAM by disconnecting the mains from the television set, the error buffer is not reset.

### 5.5.3 Error Codes

In case of non-intermittent faults, write down the errors present in the error buffer and clear the error buffer before you begin the repair. This ensures that old error codes are no longer present.

If possible, check the entire contents of the error buffer. In some situations, an error code is only the result of another error and not the actual cause of the problem (for example, a fault in the protection detection circuitry can also lead to a protection).

**Table 5-1 Error code overview**

| Error | Device | Error description | Check item | Diagram |
|---|---|---|---|---|
| 0 | Not applicable | No Error | | |
| 1 | Not applicable | - | - | - |
| 2 | Not applicable | - | - | - |
| 3 | Not applicable | - | - | - |
| 4 | GM1501 | I2C error while communicating with the Genesis Scaler and/or Flash-ROM is faulty/ empty | 7401<br>7530 | A7A11 |
| 5 | Not applicable | +5v protection | 7930 | A6 |
| 6 | I2C bus | General I2C error | 7011, 3088, 3096 | A2 |
| 7 | Not applicable | - | - | - |
| 8 | M24C32 | I2C error while communicating with the Scaler EEPROM | 7531 | A11 |
| 9 | M24C16 | I2C error while communicating with the EEPROM | 7099 | A2 |
| 10 | Tuner | I2C error while communicating with the PLL tuner | 1302, 3302, 3303, 3327 | A1 |
| 11 | Not applicable | - | - | - |
| 12 | Not applicable | - | - | - |
| 13 | Not applicable | - | - | - |
| 14 | K4D263238M | Read-write error with the Scaler SDRAM | 7501 | A10 |
| 15 | TDA9178T/N1 | I2C error while communicating with Histogram | 7560 | A3 |
| 16 | EPIC12F | I2C error while communicating with EPLD on Pixel Plus panel | 7101 | PP1 |

## 5.6 The Blinking LED Procedure

Using this procedure, you can make the contents of the error buffer visible via the front LED. This is especially useful when there is no picture.

When the SDM is entered, the front LED will blink the contents of the error-buffer:

- The Led blinks with as many pulses as the error code number, followed by a time period of 1.5 seconds, in which the Led is off.
- Then this sequence starts is repeated.

Any RC5 command terminates this sequence.

**Example** of error buffer: **12 9 6 0 0**
After entering SDM, the following occurs:

- 1 long blink of 5 seconds to start the sequence,
- 12 short blinks followed by a pause of 1.5 seconds,
- 9 short blinks followed by a pause of 1.5 seconds,
- 6 short blinks followed by a pause of 1.5 seconds,
- 1 long blink of 1.5 seconds to finish the sequence,
- The sequence starts again at 12 short blinks.

## 5.7 Fault Finding and Repair Tips

**Notes:**

- It is assumed that the components are mounted correctly with correct values and no bad solder joints.
- Before any fault finding actions, check if the correct options are set.

### 5.7.1 NVM Editor

In some cases, it can be handy if one directly can change the NVM contents. This can be done with the "NVM Editor" in SAM mode.

### 5.7.2 Load default NVM values

In case a blank NVM is placed or when the NVM content is corrupted, default values can be downloaded into the NVM. After the default values are downloaded it will be possible to start up and to start aligning the TV set. This is no longer initiated automatically; to initiate the download the following action has to be performed:

1. Switch off the TV set via the mains switch
2. Short circuit the SDM jumpers (keep short circuited)
3. Press P+ or Ch+ on the local keyboard (and keep it pressed)
4. Switch on the TV set via the mains switch
5. When the set has started up the P+/Ch+ button can be released and the short circuit of the SDM jumpers can be removed.
6. The red LED will be on continuously to indicate that the download is initiated (normally when SDM is activated the red LED will start with the Blinking LED sequence).
7. Wait +/- 30 Seconds (time needed to download default values to the NVM)

Result: The set is in SDM, the NVM is loaded with default values and the blinking LED is not activated (The blinking LED is not activated in this case to show that the download has been performed), the LED will be on.

### 5.7.3 Tuner and IF

***No Picture in RF mode***

1. Check whether picture is present in AV. If not, go to Video processing troubleshooting section.
2. If present, check that the Option settings are correct.
3. Check that all supply voltages are present.
4. Check if I2C lines are working correctly (3.3V).
5. Manually store a known channel and check if there is IF output at Tuner pin 11.
6. Feed in 105 dBuV at Tuner pin 11 and check whether there is RGB output from Video Processing IC. If yes, Tuner may be defected. Change Tuner.

***Sound in picture problem for L' system (rolling horizontal lines)***

1. Check whether AGC L' in Sam mode is set to 0.
2. If yes, align the set to correct value.

***Required system is not selected correctly***

1. Check whether the Service jumper (#4022, 08 05 size) is present. If yes, remove it.
2. Check whether SEL_IF pin is according to what is specified.

### 5.7.4 Video Processing

***No power***

1. Check +12 V and 3V3 at position 1910.
2. If no supply, check the connector 1910.
3. If it is correct, check the power supply board.

***Power supply is correct but no green light***

1. Check the two connectors 1005 and 1601, if they are properly inserted.
2. If they are inserted correctly, check if the 3V3 is present.

***No picture display***

1. Check the RGB signal.
2. If it is present, check 3-IC7016 (NE555).
3. If it has output, the problem is in SCALER part.
4. Otherwise, check H-out on pin 2 of NE555. If the input signal of pin2 is present, but no output, the IC is failed.

**Note**:

- If the H-out (pin 67) doesn't have signal or the level is low, check the output of NE555 (pin 3) during start up.
- If the H-out (pin 67) has a signal (or has a signal for a very short time), change IC7016 (NE555).

***No TV but PC is present***

1. Check if HSYNC and VSYNC are present at PIN 3 of 7071 and 7015.
2. If they are present, check RGB output.
3. If there is no RGB output, the IC TDA120xx can be failed.

***Comb Filter not working***

1. Check the option bit 5 in SAM.
2. Check NVM setting. Address 1229 is 0000.

### 5.7.5 Power Supply

***Check fuses***

This power supply contains three fuses. One is near the mains inlet (marked on the board as 1102) and two other are near the output connectors (marked 1610 and 1660).

1. Check with power supply in off state by means of ohmic measurement.
2. Fuse 1102 may open in case of severe lightning strikes and/or failures in the power supply. Despite the fact, that this fuse is mounted in a fuse holder and the marking text on the board, it is not meant to be field replaceable.
3. Fuses 1610 and 1660 may open in case a severe overload of the 12 V outputs. Replacement of the power supply is needed, but not before the cause of the overload conditions is resolved.

***Standby mode***

1. Apply a 12 ohm load resistor of sufficient power rating to all outputs (+3 V3, +12 VAL, +12 VL and +24 V). Connect the STBY pin to GND.
2. Over an input voltage range of 90 V_ac to 264 V_ac only the +3 V3 output shall be up and within regulation (±5%). The voltage on the POWER DOWN pin shall be < 0.3 V at an input voltage below 160 V_ac, and 3.3 V ±10% at an input voltage higher than 240 V_ac.

***Normal mode:***

1. Apply a 12 ohm load resistor of sufficient power rating to all outputs (+3 V3, +12 VAL, +12 VL and +24 V). Connect the STBY pin to the +3 V3 output.
2. Over an input voltage range of 90 V _ac to 264 V_ac all outputs shall be up and within regulation (±5%). The voltage on the POWER DOWN pin shall be 3.3 V ±10% over the entire input voltage range. Additionally, the voltage on the big capacitor mounted flat on the PCB shall be 400 V ±10%

## *Personal Notes:*

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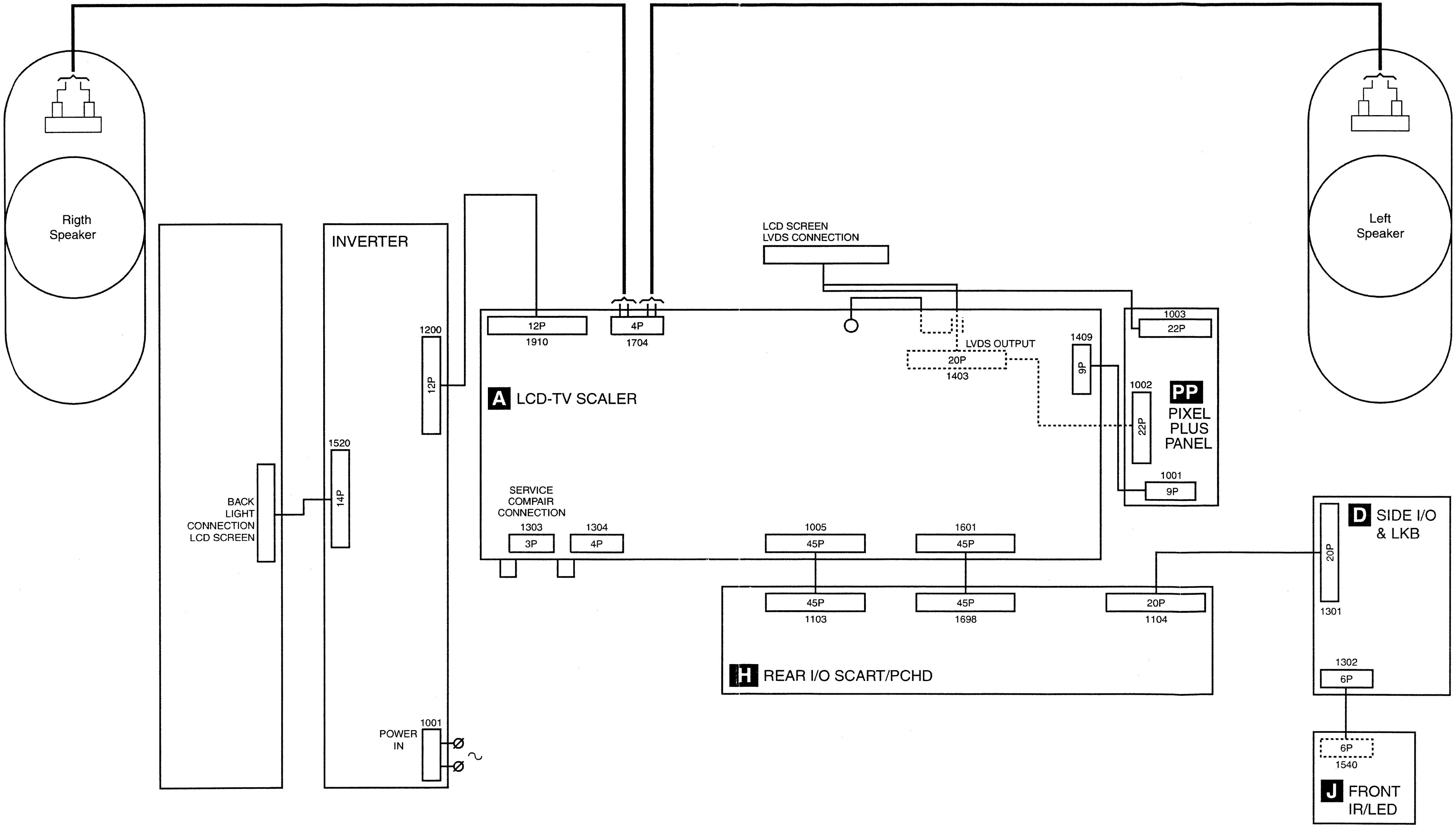
# 6. Block Diagrams, Testpoint Overviews, and Waveforms

### Wiring Diagram

## Wiring Diagram 26" LVDS Connection


Rigth
Speaker
Left
Speaker
INVERTER
1200
12P
1520
14P
BACK
LIGHT
CONNECTION
LCD SCREEN
POWER
IN
1001
12P
1910
4P
1704
A LCD-TV SCALER
LCD SCREEN
LVDS CONNECTION
LVDS OUTPUT
20P
1403
1409
9P
1003
22P
1002
22P
PP
PIXEL
PLUS
PANEL
1001
9P
SERVICE
COMPAIR
CONNECTION
1303
3P
1304
4P
1005
45P
1601
45P
45P
1103
45P
1698
20P
1104
H REAR I/O SCART/PCHD
D SIDE I/O
& LKB
20P
1301
1302
6P
6P
1540
J FRONT
IR/LED

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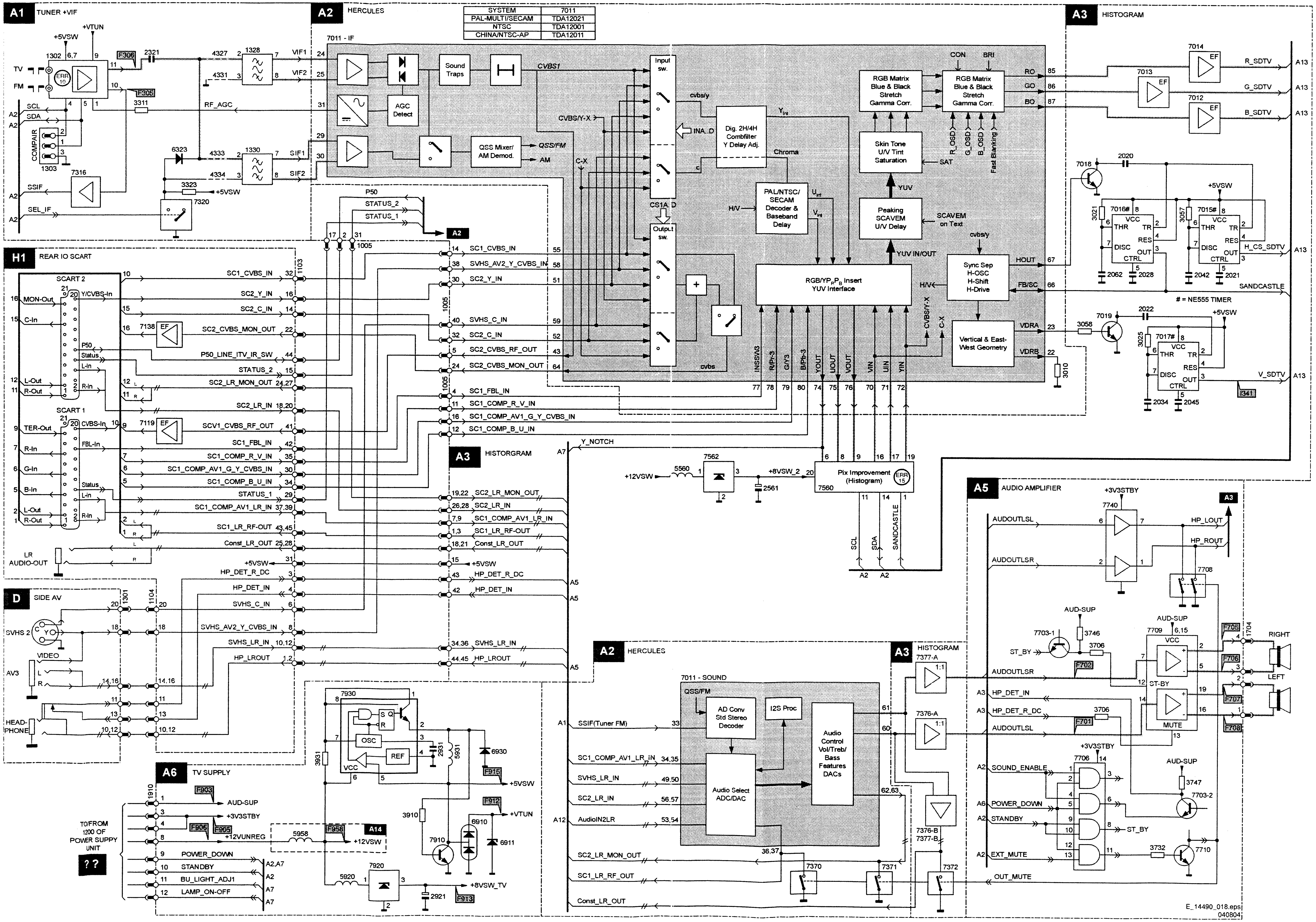
## Block Diagram Tuner and IF Video



| SYSTEM | 7011 |
|---|---|
| PAL-MULTI/SECAM | TDA12021 |
| NTSC | TDA12001 |
| CHINA/NTSC-AP | TDA12011 |

A1 TUNER +VIF
+VTUN
+5VSW
1302
TV
FM
F306
F305
2321
3311
RF_AGC
SCL
SDA
COMPAIR
1303
7316
SSIF
SEL_IF
6323
3323
+5VSW
7320
4327
4331
1328
VIF1
VIF2
4333
4334
1330
SIF1
SIF2
A2 HERCULES
7011 - IF
Sound Traps
AGC Detect
QSS Mixer/ AM Demod.
QSS/FM
AM
CVBS1
CVBS/Y-X
C-X
Input sw.
Output sw.
CS1A..D
INA..D
cvbs/y
Dig. 2H/4H Combfilter Y Delay Adj.
Chroma
PAL/NTSC/ SECAM Decoder & Baseband Delay
H/V
RGB/YPbPr Insert YUV Interface
YUV IN/OUT
Peaking SCAVEM U/V Delay
SCAVEM on Text
Skin Tone U/V Tint Saturation
SAT
YUV
RGB Matrix Blue & Black Stretch Gamma Corr.
CON
BRI
R_OSD
G_OSD
B_OSD
Fast Blanking
RO
GO
BO
Sync Sep H-OSC H-Shift H-Drive
HOUT
FB/SC
Vertical & East-West Geometry
VDRA
VDRB
INSSW3
R/Pr-3
G/Y3
B/Pb-3
YOUT
UOUT
VOUT
VIN
UIN
YIN
A3 HISTOGRAM
7014 EF R_SDTV
7013 EF G_SDTV
7012 EF B_SDTV
A13
7018
2020
+5VSW
3021
7016#
3057
7015#
VCC THR TR RES DISC OUT CTRL
2062 2028 2042 2021
H_CS_SDTV
SANDCASTLE
# = NE555 TIMER
7019
3058
2022
3025
7017#
3010
V_SDTV
F341
2034 2045
H1 REAR IO SCART
SCART 2
MON-Out
C-In
L-Out
R-Out
SCART 1
TER-Out
R-In
G-In
B-In
Y/CVBS-In
P50
Status
L-In
R-In
CVBS-In
FBL-In
7138 EF
7119 EF
SC1_CVBS_IN
SC2_Y_IN
SC2_C_IN
SC2_CVBS_MON_OUT
P50_LINE_ITV_IR_SW
STATUS_2
SC2_LR_MON_OUT
SC2_LR_IN
SCV1_CVBS_RF_OUT
SC1_FBL_IN
SC1_COMP_R_V_IN
SC1_COMP_AV1_G_Y_CVBS_IN
SC1_COMP_B_U_IN
STATUS_1
SC1_COMP_AV1_LR_IN
SC1_LR_RF-OUT
Const_LR_OUT
LR AUDIO-OUT
1103
1005
P50
STATUS_2
STATUS_1
SC1_CVBS_IN
SVHS_AV2_Y_CVBS_IN
SC2_Y_IN
SVHS_C_IN
SC2_C_IN
SC2_CVBS_RF_OUT
SC2_CVBS_MON_OUT
SC1_FBL_IN
SC1_COMP_R_V_IN
SC1_COMP_AV1_G_Y_CVBS_IN
SC1_COMP_B_U_IN
A3 HISTORGRAM
Y_NOTCH
A7
+12VSW
5560
7562
+8VSW_2
2561
Pix Improvement (Histogram)
7560
SCL
SDA
SANDCASTLE
SC2_LR_MON_OUT
SC2_LR_IN
SC1_COMP_AV1_LR_IN
SC1_LR_RF-OUT
Const_LR_OUT
+5VSW
HP_DET_R_DC
HP_DET_IN
SVHS_C_IN
SVHS_AV2_Y_CVBS_IN
SVHS_LR_IN
HP_LROUT
A5
D SIDE AV
1301
1104
SVHS 2
VIDEO
AV3
HEAD-PHONE
A6 TV SUPPLY
1910
TO/FROM 1200 OF POWER SUPPY UNIT
??
F903
AUD-SUP
+3V3STBY
F906
F905
+12VUNREG
5958
F958
A14
+12VSW
POWER_DOWN
STANDBY
BU_LIGHT_ADJ1
LAMP_ON-OFF
A2,A7
7930
OSC
REF
VCC
3931
2931
5931
6930
F915
+5VSW
3910
7910
6910
6911
F912
+VTUN
5920
7920
2921
+8VSW_TV
F913
A2 HERCULES
7011 - SOUND
QSS/FM
AD Conv Std Stereo Decoder
I2S Proc
Audio Select ADC/DAC
Audio Control Vol/Treb/ Bass Features DACs
SSIF(Tuner FM)
SC1_COMP_AV1_LR_IN
SVHS_LR_IN
SC2_LR_IN
AudioIN2LR
SC2_LR_MON_OUT
SC1_LR_RF_OUT
Const_LR_OUT
A12
A3 HISTOGRAM
7377-A
7376-A
7376-B
7377-B
7370
7371
7372
A5 AUDIO AMPLIFIER
+3V3STBY
7740
AUDOUTLSL
AUDOUTLSR
HP_LOUT
HP_ROUT
7708
AUD-SUP
7703-1
3746
3706
ST_BY
F702
AUDOUTLSR
HP_DET_IN
HP_DET_R_DC
AUDOUTLSL
F701
7709
VCC
ST-BY
MUTE
F705
F706
F707
F708
1704
RIGHT
LEFT
7706
SOUND_ENABLE
POWER_DOWN
STANDBY
EXT_MUTE
OUT_MUTE
3747
7703-2
ST_BY
3732
7710
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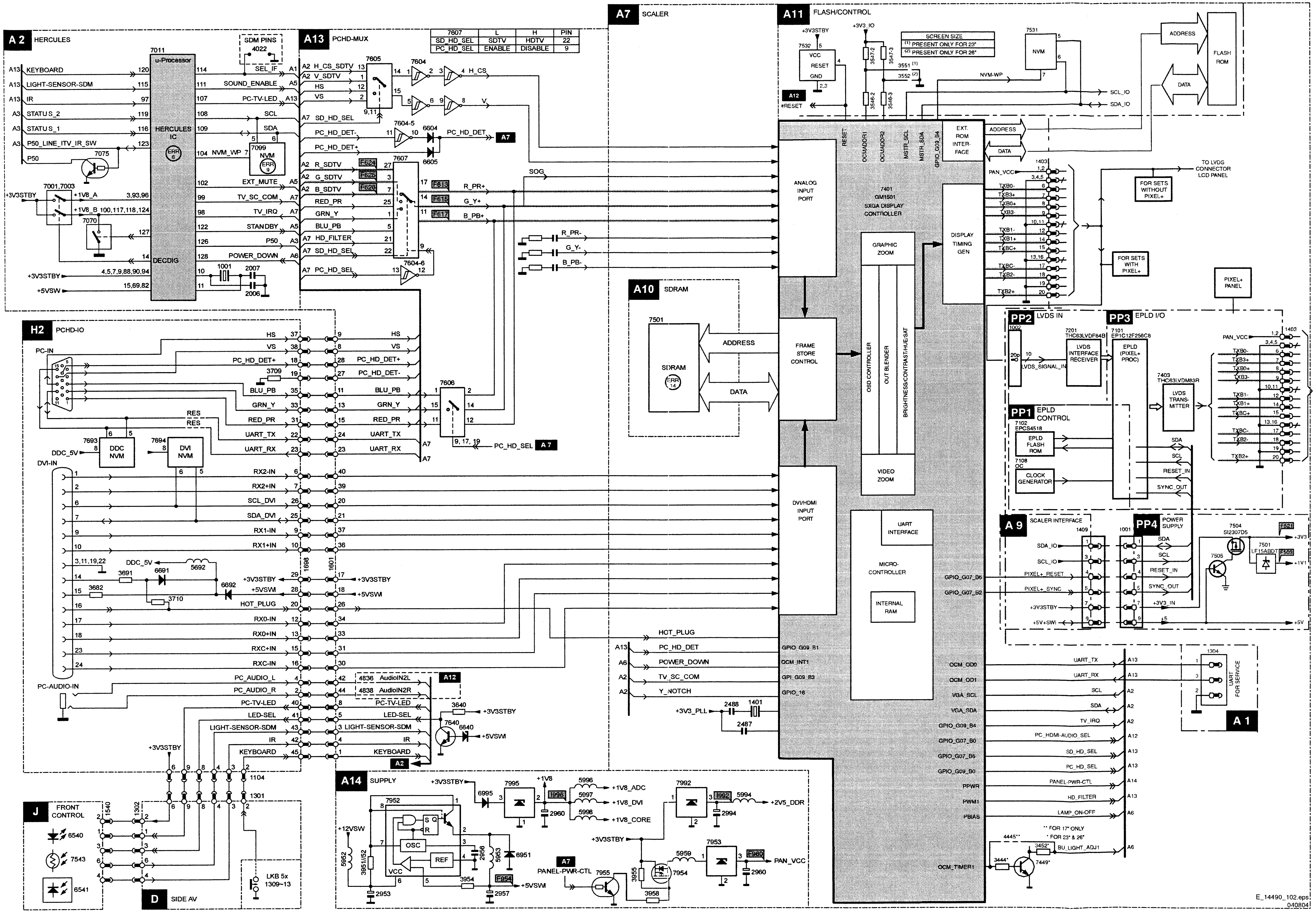
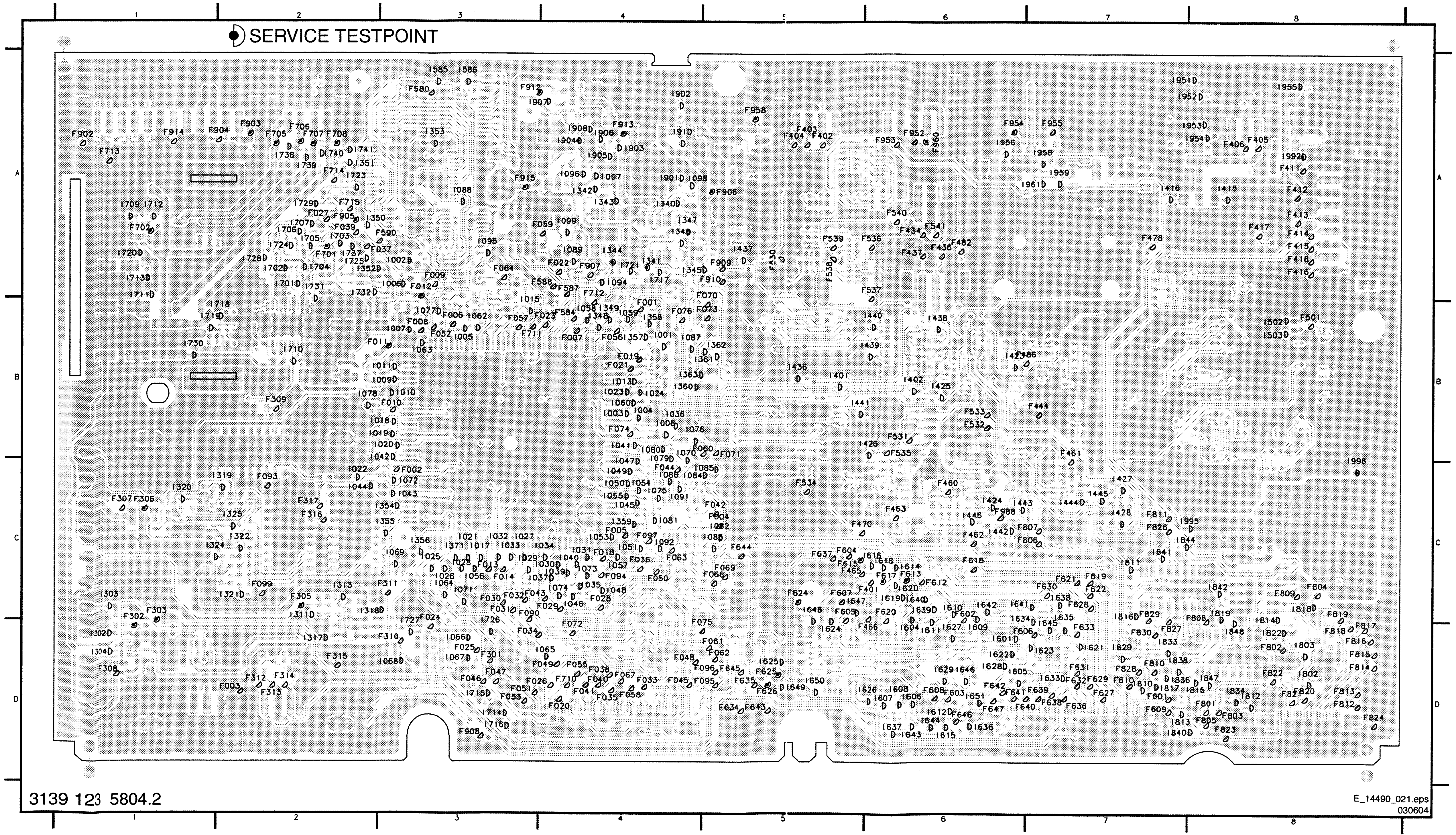
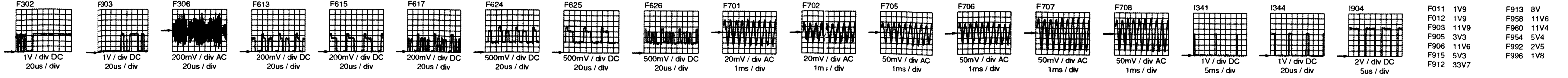
## Block Diagram Scaler


A 2 HERCULES
7011 u-Processor
HERCULES IC
DECDIG
KEYBOARD
LIGHT-SENSOR-SDM
IR
STATUS_2
STATUS_1
P50_LINE_ITV_IR_SW
P50
7075
7001,7003
+3V3STBY
+1V8_A
+1V8_B
7070
+5VSW
SDM PINS 4022
SEL_IF
SOUND_ENABLE
PC-TV-LED
SCL
SDA
NVM_WP
7099 NVM
EXT_MUTE
TV_SC_COM
TV_IRQ
STANDBY
P50
POWER_DOWN
1001
2007
2006
A13 PCHD-MUX
7607
L
H
PIN
SD_HD_SEL
SDTV
HDTV
22
PC_HD_SEL
ENABLE
DISABLE
9
7605
7604
H_CS_SDTV
V_SDTV
HS
VS
SD_HD_SEL
PC_HD_DET-
PC_HD_DET+
7604-5
6604
6605
H_CS
V
PC_HD_DET
R_SDTV
G_SDTV
B_SDTV
RED_PR
GRN_Y
BLU_PB
HD_FILTER
PC_HD_SEL
7604-6
F624
F625
F626
F613
F615
F617
R_PR+
G_Y+
B_PB+
SOG
R_PR-
G_Y-
B_PB-
H2 PCHD-IO
PC-IN
HS
VS
PC_HD_DET+
PC_HD_DET-
3709
BLU_PB
GRN_Y
RED_PR
UART_TX
UART_RX
RES
7606
7693 DDC NVM
7694 DVI NVM
DDC_5V
DVI-IN
RX2-IN
RX2+IN
SCL_DVI
SDA_DVI
RX1-IN
RX1+IN
5692
3691
6691
6692
3682
3710
+3V3STBY
+5VSW
HOT_PLUG
RX0-IN
RX0+IN
RXC+IN
RXC-IN
1698
1601
PC_AUDIO_L
PC_AUDIO_R
PC-AUDIO-IN
4836 AudioIN2L
4838 AudioIN2R
A12
PC-TV-LED
LED-SEL
LIGHT-SENSOR-SDM
IR
KEYBOARD
3640
7640
6640
1104
1301
1302
1540
J FRONT CONTROL
6540
7543
6541
D SIDE AV
LKB 5x 1309~13
A7 SCALER
A10 SDRAM
7501 SDRAM
ADDRESS
DATA
A11 FLASH/CONTROL
7532
VCC
RESET
GND
+3V3_IO
3547-2
3547-3
3546-2
3546-3
3551
3552
SCREEN SIZE
(1) PRESENT ONLY FOR 23"
(2) PRESENT ONLY FOR 26"
7531 NVM
NVM-WP
SCL_IO
SDA_IO
FLASH ROM
#RESET
RESET
OCMADDR1
OCMADDR2
MSTR_SCL
MSTR_SDA
GPIO_G10_B4
EXT. ROM INTER-FACE
ANALOG INPUT PORT
7401 GM1501 SXGA DISPLAY CONTROLLER
GRAPHIC ZOOM
OSD CONTROLLER
OUT BLENDER
BRIGHTNESS/CONTRAST/HUE/SAT
VIDEO ZOOM
DISPLAY TIMING GEN
FRAME STORE CONTROL
DVI/HDMI INPUT PORT
UART INTERFACE
MICRO-CONTROLLER
INTERNAL RAM
HOT_PLUG
PC_HD_DET
POWER_DOWN
TV_SC_COM
Y_NOTCH
GPIO_G09_B1
OCM_INT1
GPI_G09_B3
GPIO_16
+3V3_PLL
2488
1401
2487
OCM_OD0
OCM_OD1
VGA_SCL
VGA_SDA
GPIO_G09_B4
GPIO_G07_B0
GPIO_G07_B6
GPIO_G09_B0
PPWR
PWM1
PBIAS
OCM_TIMER1
UART_TX
UART_RX
SCL
SDA
TV_IRQ
PC_HDMI-AUDIO_SEL
SD_HD_SEL
PC_HD_SEL
PANEL-PWR-CTL
HD_FILTER
LAMP_ON-OFF
** FOR 17" ONLY
* FOR 23" & 26"
4445**
3452*
3444*
7449*
BU_LIGHT_ADJ1
1304
UART FOR SERVICE
A 1
PAN_VCC
1403
TXB0-
TXB3+
TXB0+
TXB3
TXB1-
TXB1+
TXBC+
TXBC-
TXB2-
TXB2+
FOR SETS WITHOUT PIXEL+
FOR SETS WITH PIXEL+
TO LVDS CONNECTOR LCD PANEL
PIXEL+ PANEL
PP2 LVDS IN
1002
LVDS_SIGNAL_IN
PP3 EPLD I/O
7201 THC63LVDF84B LVDS INTERFACE RECEIVER
7101 EP1C12F256C8 EPLD (PIXEL+ PROC)
7403 THC63LVDM83R LVDS TRANS-MITTER
PP1 EPLD CONTROL
7102 EPCS4518 EPLD FLASH ROM
7108 OC CLOCK GENERATOR
SDA
SCL
RESET_IN
SYNC_OUT
TO LCD PANEL (LVDS)
A 9 SCALER INTERFACE
1409
1001
PP4 POWER SUPPLY
SDA_IO
SCL_IO
PIXEL+_RESET
PIXEL+_SYNC
+3V3STBY
+5V+SWI
+3V3_IN
7504 SI2307DS
F521
7501 LF15ABDT
F509
7505
+3V3
+1V1
+5V
A14 SUPPLY
7952
OSC
REF
VCC
+12VSW
5952
3951/52
2953
2956
5953
6951
F954
+5VSW
3954
2957
6995
7995
+1V8
I996
2960
5996
5997
5998
+1V8_ADC
+1V8_DVI
+1V8_CORE
7992
I992
2994
5994
+2V5_DDR
PANEL-PWR-CTL
7955
3955
3958
7954
5959
7953
F960
PAN_VCC
2960
E_14490_102.eps 040804

# Testpoint Overview TV & Scaler Board (Bottom Side)

| | |
|---|---|
| F001 | B4 |
| F002 | C3 |
| F003 | D2 |
| F004 | C5 |
| F005 | C4 |
| F006 | B3 |
| F007 | B4 |
| F008 | B3 |
| F009 | A3 |
| F010 | B3 |
| F011 | B3 |
| F012 | A3 |
| F013 | C3 |
| F014 | C3 |
| F018 | C4 |
| F019 | B4 |
| F020 | D4 |
| F021 | B4 |
| F022 | A4 |
| F023 | B4 |
| F024 | D3 |
| F025 | D3 |
| F026 | D4 |
| F027 | A2 |
| F028 | C4 |
| F029 | C4 |
| F030 | C3 |
| F031 | C3 |
| F032 | C3 |
| F033 | D4 |
| F034 | D3 |
| F035 | D4 |
| F036 | C4 |
| F037 | A2 |
| F038 | D4 |
| F039 | A2 |
| F040 | D4 |
| F041 | D4 |
| F042 | C5 |
| F043 | C4 |
| F044 | C4 |
| F045 | D4 |
| F046 | D3 |
| F047 | D3 |
| F048 | D4 |
| F049 | D4 |
| F050 | C4 |
| F051 | D3 |
| F052 | B3 |
| F053 | D3 |
| F055 | D4 |
| F056 | B4 |
| F057 | B3 |
| F058 | D4 |
| F059 | A4 |
| F060 | B5 |
| F061 | D5 |
| F062 | D5 |
| F063 | C4 |
| F064 | A3 |
| F067 | D4 |
| F068 | C5 |
| F069 | C5 |
| F070 | B5 |
| F071 | B5 |
| F072 | D4 |
| F073 | B5 |
| F074 | B4 |
| F075 | D4 |
| F076 | B4 |
| F090 | C3 |
| F093 | C2 |
| F094 | C4 |
| F095 | D5 |
| F096 | D5 |
| F097 | C4 |
| F099 | C2 |
| F301 | D3 |
| F302 | D1 |
| F303 | D1 |
| F305 | C2 |
| F306 | C1 |
| F307 | C1 |
| F308 | D1 |
| F309 | B2 |
| F310 | D3 |
| F311 | C3 |
| F312 | D2 |
| F313 | D2 |
| F314 | D2 |
| F315 | D2 |
| F316 | C2 |
| F317 | C2 |
| F401 | C6 |
| F402 | A5 |
| F403 | A5 |
| F404 | A5 |
| F405 | A8 |
| F406 | A8 |
| F411 | A8 |
| F412 | A8 |
| F413 | A8 |
| F414 | A8 |
| F415 | A8 |
| F416 | A8 |
| F417 | A8 |
| F418 | A8 |
| F434 | A6 |
| F436 | A6 |
| F437 | A6 |
| F444 | B7 |
| F460 | C6 |
| F461 | C7 |
| F462 | C6 |
| F463 | C6 |
| F465 | C5 |
| F466 | C6 |
| F470 | C5 |
| F478 | A7 |
| F482 | A6 |
| F486 | B6 |
| F501 | B8 |
| F530 | A5 |
| F531 | B6 |
| F532 | B6 |
| F533 | B6 |
| F534 | C5 |
| F535 | B6 |
| F536 | A6 |
| F537 | A6 |
| F538 | A5 |
| F539 | A5 |
| F540 | A6 |
| F541 | A6 |
| F580 | A3 |
| F584 | B4 |
| F587 | A4 |
| F588 | A4 |
| F590 | A2 |
| F601 | D7 |
| F602 | C6 |
| F603 | D6 |
| F604 | C5 |
| F605 | C5 |
| F606 | D7 |
| F607 | C5 |
| F608 | D6 |
| F609 | D7 |
| F610 | D7 |
| F612 | C6 |
| F613 | C6 |
| F615 | C5 |
| F617 | C6 |
| F618 | C6 |
| F619 | C7 |
| F620 | C6 |
| F621 | C7 |
| F622 | C7 |
| F624 | C5 |
| F625 | D5 |
| F626 | D5 |
| F627 | D7 |
| F628 | C7 |
| F629 | D7 |
| F630 | C7 |
| F631 | D7 |
| F632 | D7 |
| F633 | D7 |
| F634 | D5 |
| F635 | D5 |
| F636 | D7 |
| F637 | C5 |
| F638 | D7 |
| F639 | D7 |
| F640 | D6 |
| F641 | D6 |
| F642 | D6 |
| F643 | D5 |
| F644 | C5 |
| F645 | D5 |
| F646 | D6 |
| F647 | D6 |
| F701 | A2 |
| F702 | A1 |
| F705 | A2 |
| F706 | A2 |
| F707 | A2 |
| F708 | A2 |
| F710 | D4 |
| F711 | B3 |
| F712 | B4 |
| F713 | A1 |
| F714 | A2 |
| F715 | A2 |
| F801 | D8 |
| F802 | D8 |
| F803 | D8 |
| F804 | C8 |
| F805 | D8 |
| F806 | C7 |
| F807 | C7 |
| F808 | C8 |
| F809 | C8 |
| F810 | D7 |
| F811 | C7 |
| F812 | D8 |
| F813 | D8 |
| F814 | D8 |
| F815 | D8 |
| F816 | D8 |
| F817 | D8 |
| F818 | D8 |
| F819 | C8 |
| F820 | D8 |
| F821 | D8 |
| F822 | D8 |
| F823 | D8 |
| F824 | D8 |
| F826 | C7 |
| F827 | C7 |
| F828 | D7 |
| F829 | C7 |
| F830 | D7 |
| F902 | A1 |
| F903 | A2 |
| F904 | A2 |
| F905 | A2 |
| F906 | A5 |
| F907 | A4 |
| F908 | D3 |
| F909 | A5 |
| F910 | A5 |
| F912 | A3 |
| F913 | A4 |
| F914 | A1 |
| F915 | A3 |
| F952 | A6 |
| F953 | A6 |
| F954 | A6 |
| F955 | A7 |
| F958 | A5 |
| F960 | A6 |
| F988 | C6 |
| I001 | B4 |
| I002 | A3 |
| I003 | B4 |
| I004 | B4 |
| I005 | B3 |
| I006 | A3 |
| I007 | B3 |
| I008 | B4 |
| I009 | B3 |
| I010 | B3 |
| I011 | B3 |
| I013 | B4 |
| I015 | B3 |
| I017 | C3 |
| I018 | B3 |
| I019 | B3 |
| I020 | B3 |
| I021 | C3 |
| I022 | C2 |
| I023 | B4 |
| I024 | B4 |
| I025 | C3 |
| I026 | C3 |
| I027 | C3 |
| I028 | C3 |
| I029 | C3 |
| I030 | C4 |
| I031 | C4 |
| I032 | C3 |
| I033 | C3 |
| I034 | C4 |
| I035 | C4 |
| I036 | B4 |
| I037 | C4 |
| I039 | C4 |
| I040 | C4 |
| I041 | B4 |
| I042 | B3 |
| I043 | C3 |
| I044 | C2 |
| I045 | C4 |
| I046 | C4 |
| I047 | C4 |
| I048 | C4 |
| I049 | C4 |
| I050 | C4 |
| I051 | C4 |
| I053 | C4 |
| I054 | C4 |
| I055 | C4 |
| I056 | C3 |
| I057 | C4 |
| I058 | B4 |
| I059 | B4 |
| I060 | B4 |
| I062 | B3 |
| I063 | B3 |
| I064 | C3 |
| I065 | D4 |
| I066 | D3 |
| I067 | D3 |
| I068 | D3 |
| I069 | C3 |
| I070 | C4 |
| I071 | C3 |
| I072 | C3 |
| I073 | C4 |
| I074 | C4 |
| I075 | C4 |
| I076 | B4 |
| I077 | B3 |
| I078 | B2 |
| I079 | B4 |
| I080 | B4 |
| I081 | C4 |
| I082 | C5 |
| I083 | C5 |
| I084 | C5 |
| I085 | C5 |
| I086 | C4 |
| I087 | B4 |
| I088 | A3 |
| I089 | A4 |
| I091 | C4 |
| I092 | C4 |
| I094 | A4 |
| I095 | A3 |
| I096 | A4 |
| I097 | A4 |
| I098 | A4 |
| I099 | A4 |
| I302 | D1 |
| I303 | C1 |
| I304 | D1 |
| I311 | C2 |
| I313 | C2 |
| I317 | D2 |
| I318 | C3 |
| I319 | C2 |
| I320 | C1 |
| I321 | C2 |
| I322 | C2 |
| I324 | C1 |
| I325 | C2 |
| I340 | A4 |
| I341 | A4 |
| I342 | A4 |
| I343 | A4 |
| I344 | A4 |
| I345 | A5 |
| I346 | A4 |
| I347 | A4 |
| I348 | B4 |
| I349 | B4 |
| I350 | A2 |
| I351 | A2 |
| I352 | A2 |
| I353 | A3 |
| I354 | C3 |
| I355 | C3 |
| I356 | C3 |
| I357 | B4 |
| I358 | B4 |
| I359 | C4 |
| I360 | B4 |
| I361 | B5 |
| I362 | B5 |
| I363 | B4 |
| I371 | C3 |
| I401 | B5 |
| I402 | B6 |
| I415 | A8 |
| I416 | A7 |
| I423 | B6 |
| I424 | C6 |
| I425 | B6 |
| I426 | B6 |
| I427 | C7 |
| I428 | C7 |
| I436 | B5 |
| I437 | A5 |
| I438 | B6 |
| I439 | B6 |
| I440 | B6 |
| I441 | B5 |
| I442 | C6 |
| I443 | C6 |
| I444 | C7 |
| I445 | C7 |
| I446 | C6 |
| I502 | B8 |
| I503 | B8 |
| I585 | A3 |
| I586 | A3 |
| I601 | D6 |
| I604 | C6 |
| I605 | D6 |
| I606 | D6 |
| I607 | D6 |
| I608 | D6 |
| I609 | C6 |
| I610 | C6 |
| I611 | D6 |
| I612 | D6 |
| I614 | C6 |
| I615 | D6 |
| I616 | C6 |
| I618 | C6 |
| I619 | C6 |
| I620 | C6 |
| I621 | D7 |
| I622 | D6 |
| I623 | D7 |
| I624 | D5 |
| I625 | D5 |
| I626 | D6 |
| I627 | D6 |
| I628 | D6 |
| I629 | D6 |
| I633 | D7 |
| I634 | D7 |
| I635 | D7 |
| I636 | D6 |
| I637 | D6 |
| I638 | C7 |
| I639 | C6 |
| I640 | C6 |
| I641 | C7 |
| I642 | C6 |
| I643 | D6 |
| I644 | D6 |
| I645 | D7 |
| I646 | D6 |
| I647 | C5 |
| I648 | D5 |
| I649 | D5 |
| I650 | D5 |
| I651 | D6 |
| I701 | A2 |
| I702 | A2 |
| I703 | A2 |
| I704 | A2 |
| I705 | A2 |
| I706 | A2 |
| I707 | A2 |
| I709 | A1 |
| I710 | B2 |
| I711 | A1 |
| I712 | A1 |
| I713 | A1 |
| I714 | D3 |
| I715 | D3 |
| I716 | D3 |
| I717 | A4 |
| I718 | B2 |
| I719 | B1 |
| I720 | A1 |
| I721 | A4 |
| I723 | A2 |
| I724 | A2 |
| I725 | A2 |
| I726 | D3 |
| I727 | D3 |
| I728 | A2 |
| I729 | A2 |
| I730 | B1 |
| I731 | B2 |
| I732 | A2 |
| I737 | A2 |
| I738 | A2 |
| I739 | A2 |
| I740 | A2 |
| I741 | A2 |
| I802 | D8 |
| I803 | D8 |
| I810 | D7 |
| I811 | C7 |
| I812 | D8 |
| I813 | D7 |
| I814 | C8 |
| I815 | D8 |
| I816 | C7 |
| I817 | D7 |
| I818 | C8 |
| I819 | C8 |
| I822 | D8 |
| I829 | D7 |
| I833 | D7 |
| I834 | D8 |
| I836 | D7 |
| I838 | D7 |
| I840 | D8 |
| I841 | C7 |
| I842 | C8 |
| I844 | C7 |
| I847 | D8 |
| I848 | D8 |
| I901 | A4 |
| I902 | A4 |
| I903 | A4 |
| I904 | A4 |
| I905 | A4 |
| I906 | A4 |
| I907 | A4 |
| I908 | A4 |
| I910 | A4 |
| I951 | A8 |
| I952 | A8 |
| I953 | A8 |
| I954 | A8 |
| I955 | A8 |
| I956 | A6 |
| I958 | A7 |
| I959 | A7 |
| I961 | A7 |
| I992 | A8 |
| I995 | C8 |
| I996 | C8 |

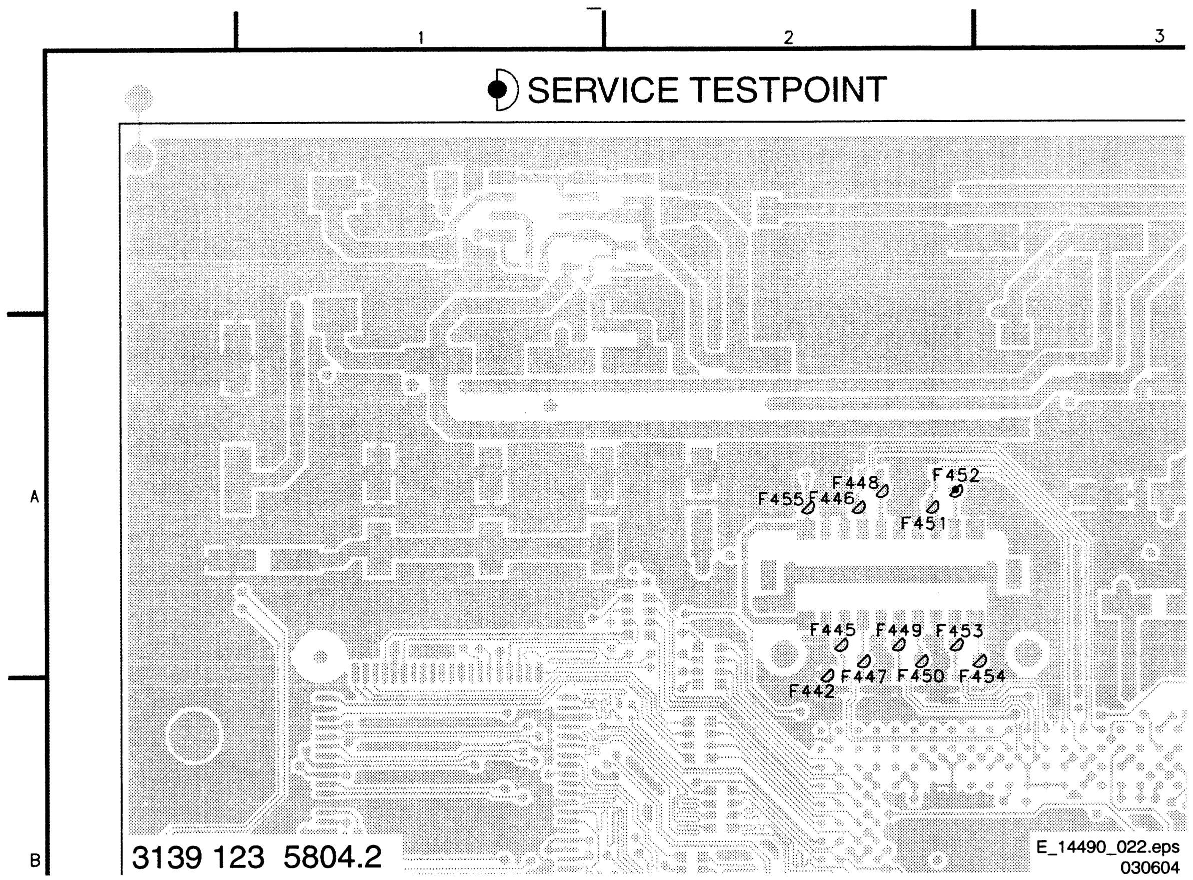




F305 No wafeform available

| | |
|---|---|
| F011 | 1V9 |
| F012 | 1V9 |
| F903 | 11V9 |
| F905 | 3V3 |
| F906 | 11V6 |
| F915 | 5V3 |
| F912 | 33V7 |
| F913 | 8V |
| F958 | 11V6 |
| F960 | 11V4 |
| F954 | 5V4 |
| F992 | 2V5 |
| F996 | 1V8 |

## Testpoint Overview TV & Scaler Board (Top Side)


1
2
3
A
B
SERVICE TESTPOINT
F455
F446
F448
F452
F451
F445
F449
F453
F442
F447
F450
F454
3139 123 5804.2

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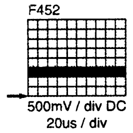

**Personal Notes:**

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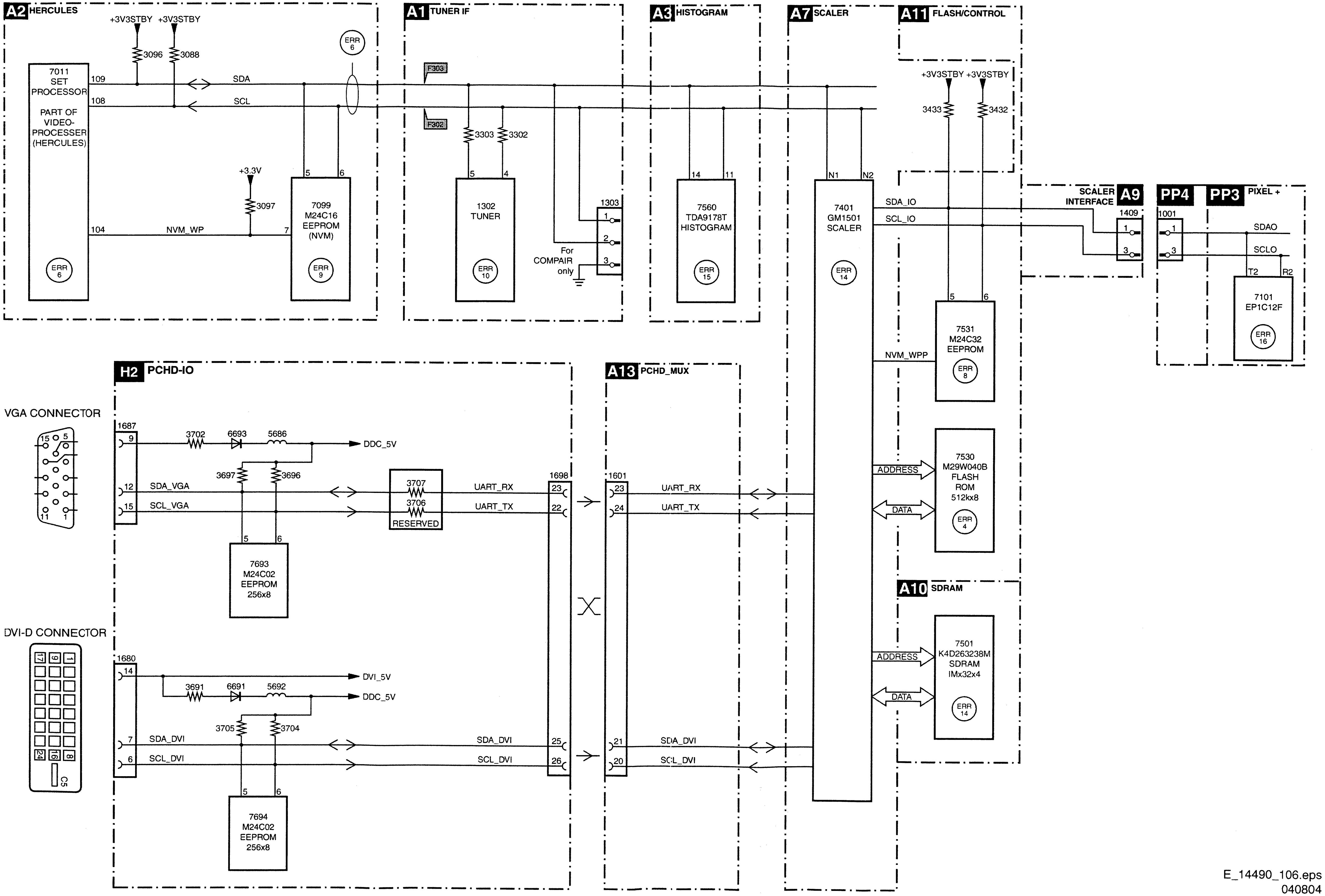
130204

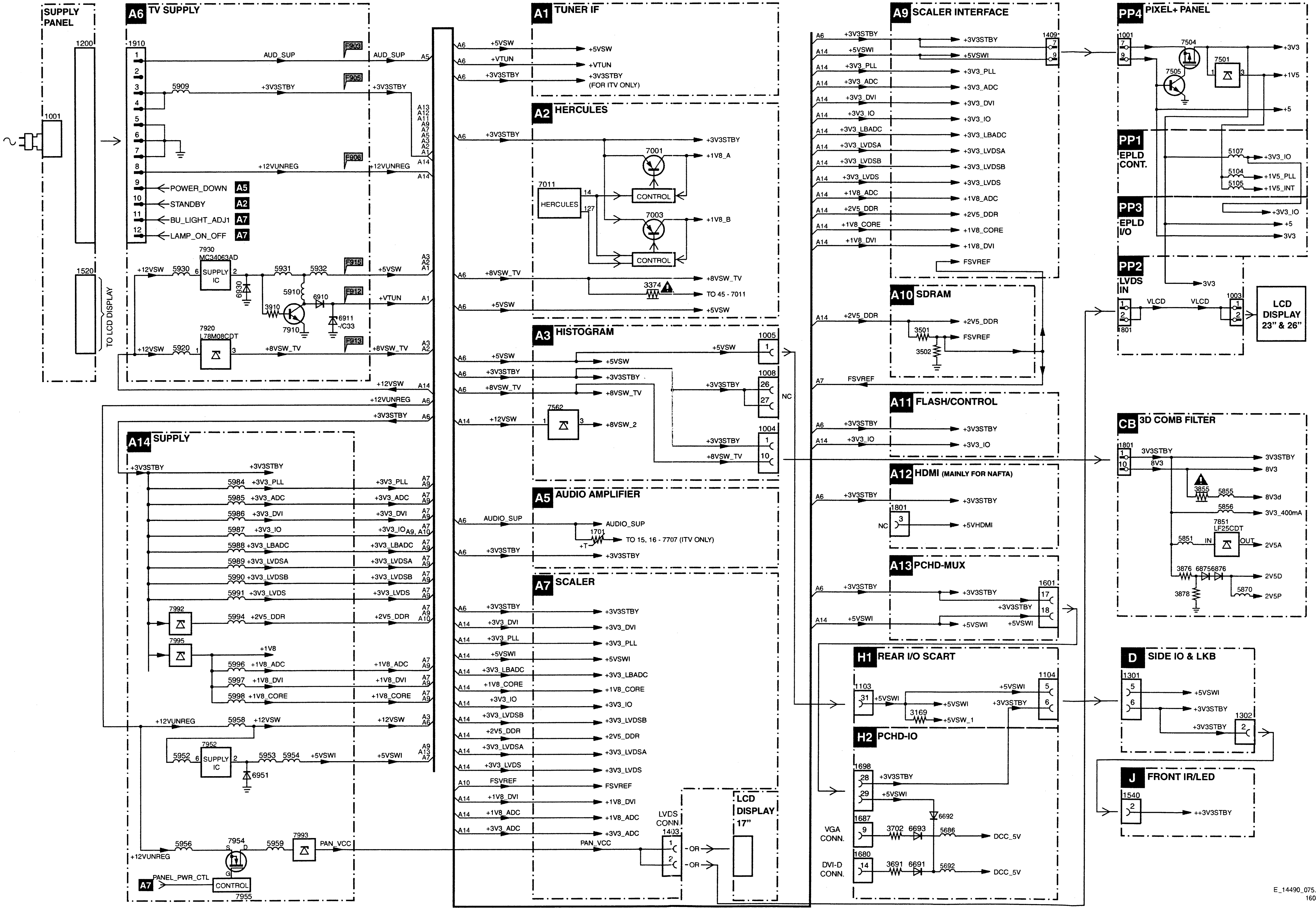
## I2C IC Overview

# I2C BUS INTERCONNECTION DIAGRAM


A2 HERCULES
+3V3STBY
+3V3STBY
3096
3088
ERR 6
7011 SET PROCESSOR
PART OF VIDEO-PROCESSER (HERCULES)
109
108
104
SDA
SCL
NVM_WP
+3.3V
3097
7099 M24C16 EEPROM (NVM)
ERR 9
ERR 6
A1 TUNER IF
F303
F302
3303
3302
1302 TUNER
ERR 10
1303
For COMPAIR only
A3 HISTOGRAM
7560 TDA9178T HISTOGRAM
ERR 15
A7 SCALER
N1
N2
7401 GM1501 SCALER
ERR 14
SDA_IO
SCL_IO
NVM_WPP
ADDRESS
DATA
A11 FLASH/CONTROL
+3V3STBY +3V3STBY
3433
3432
7531 M24C32 EEPROM
ERR 8
7530 M29W040B FLASH ROM 512kx8
ERR 4
A10 SDRAM
7501 K4D263238M SDRAM IMx32x4
ERR 14
SCALER INTERFACE A9
1409
PP4
1001
PP3 PIXEL +
SDAO
SCLO
T2
R2
7101 EP1C12F
ERR 16
H2 PCHD-IO
VGA CONNECTOR
1687
3702
6693
5686
DDC_5V
3697
3696
SDA_VGA
SCL_VGA
3707
3706
RESERVED
UART_RX
UART_TX
7693 M24C02 EEPROM 256x8
DVI-D CONNECTOR
1680
DVI_5V
3691
6691
5692
DDC_5V
3705
3704
SDA_DVI
SCL_DVI
7694 M24C02 EEPROM 256x8
1698
A13 PCHD_MUX
1601
UART_RX
UART_TX
SDA_DVI
SCL_DVI

E_14490_106.eps
040804

## Supply Voltage Overview


SUPPLY PANEL
1200
1001
1520
TO LCD DISPLAY
A6 TV SUPPLY
1910
AUD_SUP
+3V3STBY
+12VUNREG
POWER_DOWN A5
STANDBY A2
BU_LIGHT_ADJ1 A7
LAMP_ON_OFF A7
5909
F903
F905
F906
7930 MC34063AD
SUPPLY IC
5930
5931
5932
5910
6910
3910
7910
6911 -/C33
F915
F912
F913
+12VSW
+5VSW
+VTUN
7920 L78M08CDT
5920
+8VSW_TV
+12VSW
+12VUNREG
+3V3STBY
A14 SUPPLY
+3V3STBY
5984 +3V3_PLL
5985 +3V3_ADC
5986 +3V3_DVI
5987 +3V3_IO
5988 +3V3_LBADC
5989 +3V3_LVDSA
5990 +3V3_LVDSB
5991 +3V3_LVDS
7992
5994 +2V5_DDR
7995
+1V8
5996 +1V8_ADC
5997 +1V8_DVI
5998 +1V8_CORE
+12VUNREG
5958 +12VSW
7952
5952
SUPPLY IC
5953 5954 +5VSWI
6951
5956
7954
5959
7993
PAN_VCC
+12VUNREG
PANEL_PWR_CTL
A7
CONTROL
7955
A1 TUNER IF
+5VSW
+VTUN
+3V3STBY (FOR ITV ONLY)
A2 HERCULES
7011 HERCULES
7001
+1V8_A
CONTROL
7003
+1V8_B
+8VSW_TV
3374
TO 45 - 7011
A3 HISTOGRAM
1005
1008
1004
NC
7562
+8VSW_2
A5 AUDIO AMPLIFIER
AUDIO_SUP
1701
TO 15, 16 - 7707 (ITV ONLY)
A7 SCALER
+3V3STBY
+3V3_DVI
+3V3_PLL
+5VSWI
+3V3_LBADC
+1V8_CORE
+3V3_IO
+3V3_LVDSB
+2V5_DDR
+3V3_LVDSA
+3V3_LVDS
FSVREF
+1V8_DVI
+1V8_ADC
+3V3_ADC
PAN_VCC
LVDS CONN.
1403
-OR-
LCD DISPLAY 17"
A9 SCALER INTERFACE
1409
+3V3STBY
+5VSWI
+3V3_PLL
+3V3_ADC
+3V3_DVI
+3V3_IO
+3V3_LBADC
+3V3_LVDSA
+3V3_LVDSB
+3V3_LVDS
+1V8_ADC
+2V5_DDR
+1V8_CORE
+1V8_DVI
FSVREF
A10 SDRAM
+2V5_DDR
3501
3502
FSVREF
A11 FLASH/CONTROL
+3V3STBY
+3V3_IO
A12 HDMI (MAINLY FOR NAFTA)
1801
NC
+5VHDMI
A13 PCHD-MUX
1601
+5VSWI
H1 REAR I/O SCART
1103
1104
3169
+5VSW_1
H2 PCHD-IO
1698
1687
VGA CONN.
3702 6693
5686
DCC_5V
6692
1680
DVI-D CONN.
3691 6691
5692
PP4 PIXEL+ PANEL
1001
7504
7501
7505
+3V3
+1V5
+5
PP1 EPLD CONT.
5107
+3V3_IO
5104
+1V5_PLL
5105
+1V5_INT
PP3 EPLD I/O
3V3
PP2 LVDS IN
VLCD
1003
801
LCD DISPLAY 23" & 26"
CB 3D COMB FILTER
1801
3V3STBY
8V3
3855
5855
8V3d
5856
3V3_400mA
7851 LF25CDT
5851
IN
OUT
2V5A
3876 6875 6876
2V5D
3878
5870
2V5P
D SIDE IO & LKB
1301
+5VSWI
+3V3STBY
1302
J FRONT IR/LED
1540
++3V3STBY

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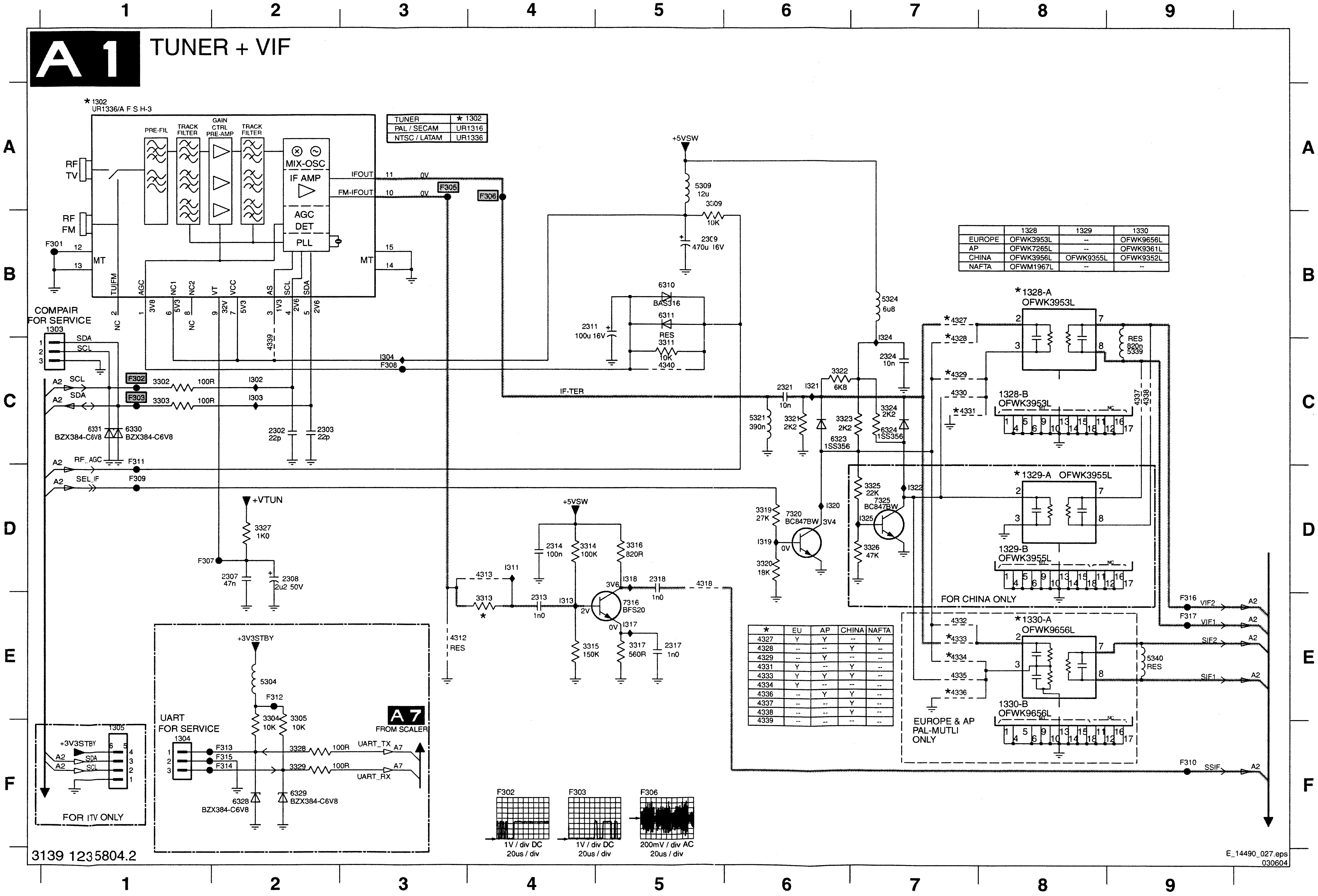
160704

# 7. Circuit Diagrams and PWB Layouts

## TV & Scaler Board: Tuner + VIF


A1
TUNER + VIF
★1302
UR1336/A F S H-3
PRE-FIL
TRACK FILTER
GAIN CTRL PRE-AMP
TRACK FILTER
MIX-OSC
IF AMP
AGC
DET
PLL
IFOUT
FM-IFOUT
RF TV
RF FM
MT
TU/FM
AGC
NC1
NC2
VT
VCC
AS
SCL
SDA
COMPAIR FOR SERVICE
1303
SDA
SCL
F301
F302
F303
F305
F306
F307
F308
F309
F311
3302 100R
3303 100R
6331 BZX384-C6V8
6330 BZX384-C6V8
2302 22p
2303 22p
RF_AGC
SEL_IF
+VTUN
3327 1K0
2307 47n
2308 2u2 50V
+5VSW
5309 12u
3309 10K
2309 470u 16V
6310 BAS316
6311 RES
2311 100u 16V
3311 10K
4340
IF-TER
2321 10n
5321 390n
3321 2K2
3322 6K8
3323 2K2
3324 2K2
6323 1SS356
6324 1SS356
5324 6u8
2324 10n
7320 BC847BW
7325 BC847BW
3319 27K
3320 18K
3325 22K
3326 47K
2314 100n
3314 100K
3316 820R
3315 150K
3317 560R
2317 1n0
2313 1n0
2318 1n0
7316 BFS20
3313
4313
4312 RES
4318
★1328-A OFWK3953L
1328-B OFWK3953L
★1329-A OFWK3955L
1329-B OFWK3955L
FOR CHINA ONLY
★1330-A OFWK9656L
1330-B OFWK9656L
EUROPE & AP PAL-MUTLI ONLY
5339 RES 820n
5340 RES
VIF2
VIF1
SIF2
SIF1
SSIF
F310
F316
F317
A2
+3V3STBY
5304
F312
F313
F314
F315
3304 10K
3305 10K
3328 100R
3329 100R
UART_TX
UART_RX
UART FOR SERVICE
1304
6328 BZX384-C6V8
6329 BZX384-C6V8
A7
FROM SCALER
1305
FOR ITV ONLY
F302 1V / div DC 20us / div
F303 1V / div DC 20us / div
F306 200mV / div AC 20us / div
3139 1235804.2
E_14490_027.eps 030604

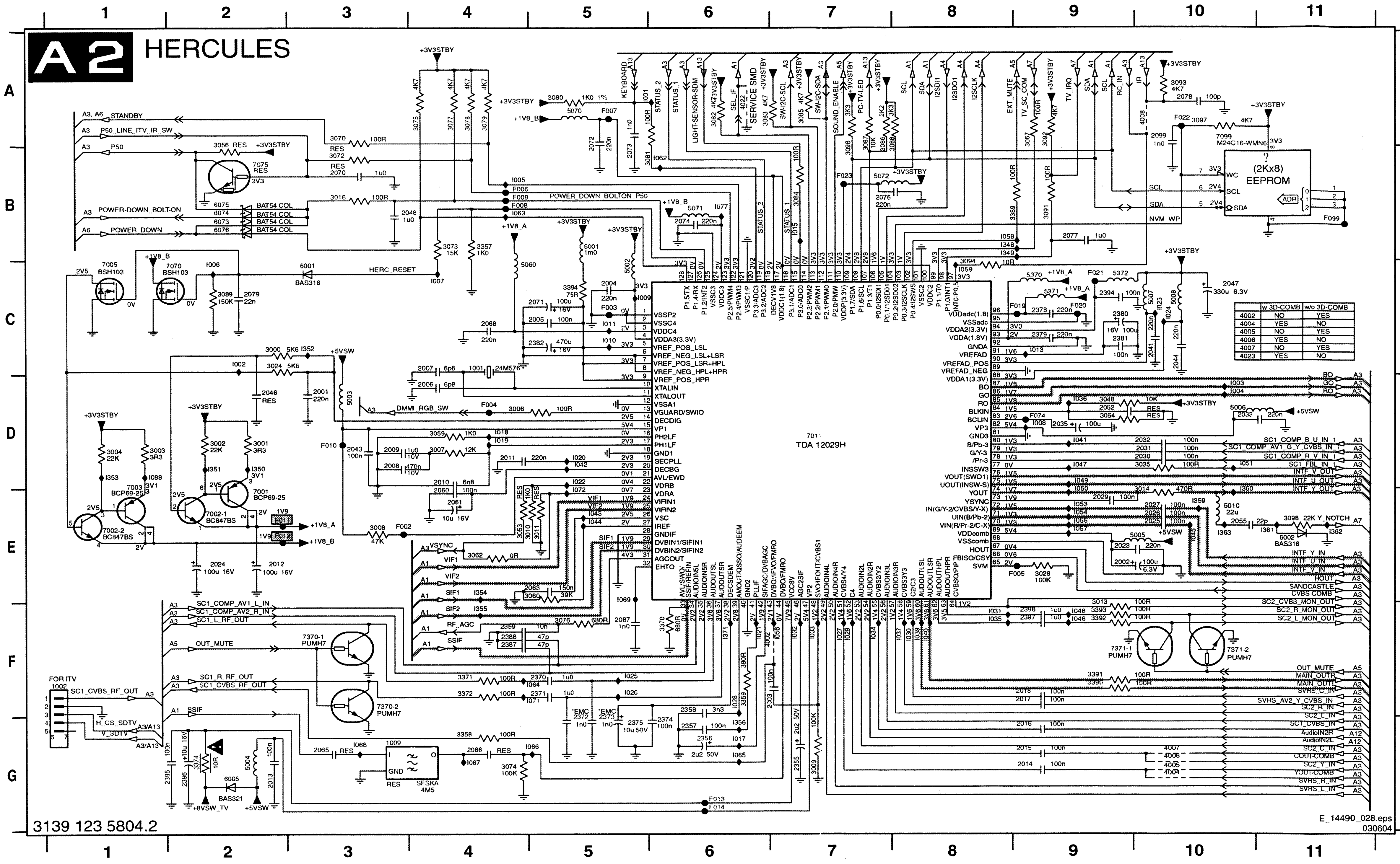
| TUNER | ★ 1302 |
|---|---|
| PAL / SECAM | UR1316 |
| NTSC / LATAM | UR1336 |

| | 1328 | 1329 | 1330 |
|---|---|---|---|
| EUROPE | OFWK3953L | -- | OFWK9656L |
| AP | OFWK7265L | -- | OFWK9361L |
| CHINA | OFWK3956L | OFWK9355L | OFWK9352L |
| NAFTA | OFWM1967L | -- | -- |

| ★ | EU | AP | CHINA | NAFTA |
|---|---|---|---|---|
| 4327 | Y | Y | -- | Y |
| 4328 | -- | -- | Y | -- |
| 4329 | -- | Y | -- | -- |
| 4331 | Y | -- | Y | -- |
| 4333 | Y | Y | Y | -- |
| 4334 | Y | -- | -- | -- |
| 4336 | -- | Y | Y | -- |
| 4337 | -- | -- | Y | -- |
| 4338 | -- | -- | Y | -- |
| 4339 | -- | -- | -- | -- |

| | |
|---|---|
| 1302 | A1 |
| 1303 | B1 |
| 1304 | F1 |
| 1305 | F1 |
| 1328-A | B8 |
| 1328-B | C8 |
| 1329-A | D8 |
| 1329-B | D8 |
| 1330-A | E8 |
| 1330-B | E8 |
| 2302 | C2 |
| 2303 | C2 |
| 2307 | D2 |
| 2308 | D2 |
| 2309 | B5 |
| 2311 | B4 |
| 2313 | E4 |
| 2314 | D4 |
| 2317 | E5 |
| 2318 | D5 |
| 2321 | C6 |
| 2324 | C7 |
| 3302 | C1 |
| 3303 | C1 |
| 3304 | E2 |
| 3305 | E2 |
| 3309 | A5 |
| 3311 | C5 |
| 3313 | E4 |
| 3314 | D4 |
| 3315 | E4 |
| 3316 | D5 |
| 3317 | E5 |
| 3319 | D6 |
| 3320 | D6 |
| 3321 | C6 |
| 3322 | C6 |
| 3323 | C6 |
| 3324 | C7 |
| 3325 | D7 |
| 3326 | D7 |
| 3327 | D2 |
| 3328 | F2 |
| 3329 | F2 |
| 4312 | E3 |
| 4313 | D4 |
| 4318 | D5 |
| 4327 | B7 |
| 4328 | C7 |
| 4329 | C7 |
| 4330 | C7 |
| 4331 | C7 |
| 4332 | E7 |
| 4333 | E7 |
| 4334 | E7 |
| 4335 | E7 |
| 4336 | E7 |
| 4337 | C9 |
| 4338 | C9 |
| 4339 | C2 |
| 4340 | C5 |
| 5304 | E2 |
| 5309 | A5 |
| 5321 | C6 |
| 5324 | B7 |
| 5339 | C9 |
| 5340 | E9 |
| 6310 | B5 |
| 6311 | B5 |
| 6323 | C6 |
| 6324 | C7 |
| 6328 | F2 |
| 6329 | F2 |
| 6330 | C1 |
| 6331 | C1 |
| 7316 | E5 |
| 7320 | D6 |
| 7325 | D7 |
| F301 | B1 |
| F302 | C1 |
| F303 | C1 |
| F305 | A3 |
| F306 | A4 |
| F307 | D1 |
| F308 | C3 |
| F309 | D1 |
| F310 | F9 |
| F311 | C1 |
| F312 | E2 |
| F313 | F2 |
| F314 | F2 |
| F315 | F2 |
| F316 | E9 |
| F317 | E9 |
| I302 | C2 |
| I303 | C2 |
| I304 | C3 |
| I311 | D4 |
| I313 | E4 |
| I317 | E5 |
| I318 | D5 |
| I319 | D6 |
| I320 | D6 |
| I321 | C6 |
| I322 | D7 |
| I324 | B7 |
| I325 | D7 |

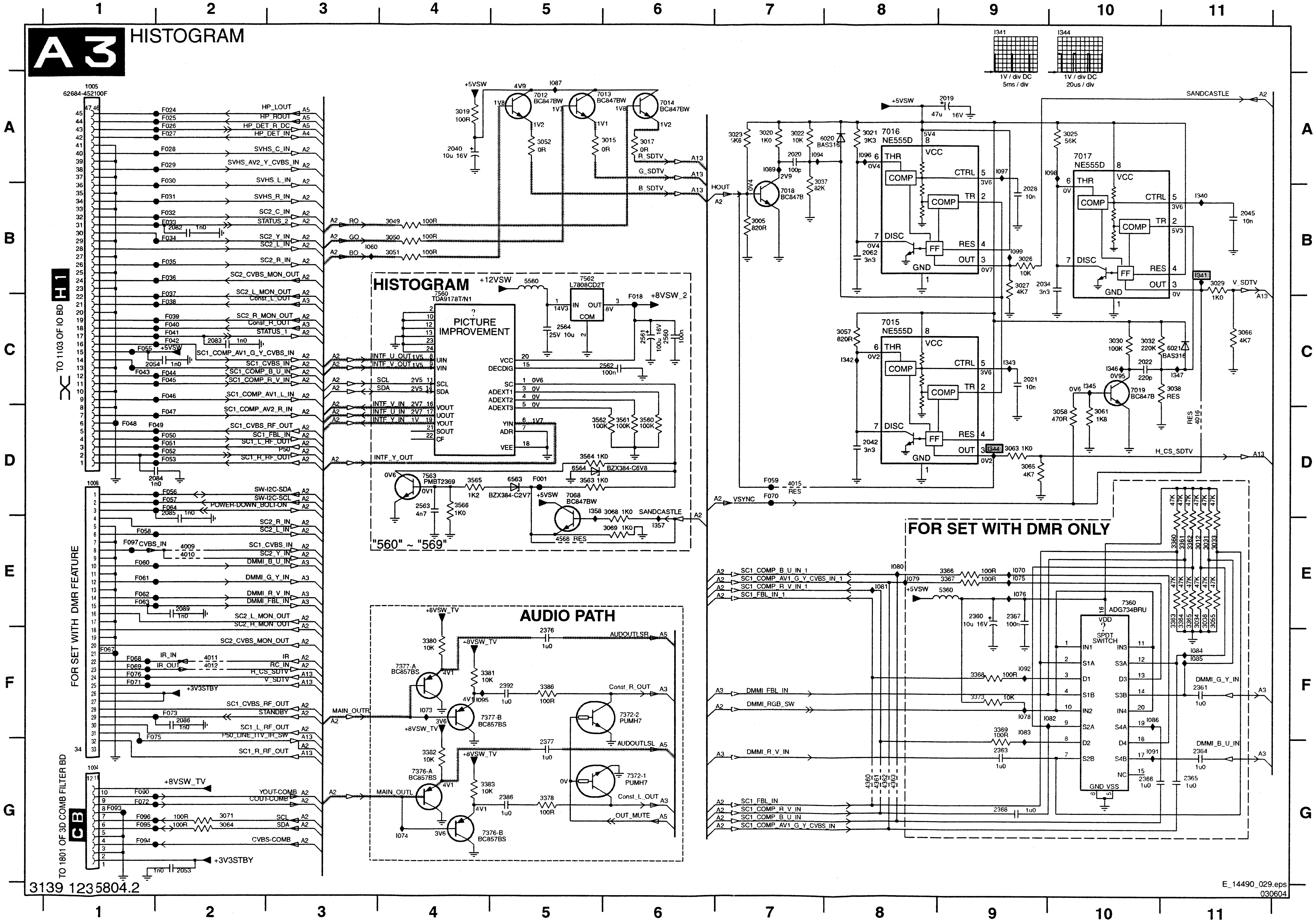
## TV & Scaler Board: Hercules


A2 HERCULES
TDA 12029H
7011
7099
M24C16-WMN6
(2Kx8)
EEPROM
SCL
SDA
NVM_WP
STANDBY
P50_LINE_ITV_IR_SW
POWER-DOWN_BOLT-ON
POWER_DOWN
HERC_RESET
DMMI_RGB_SW
SC1_COMP_AV1_L_IN
SC1_COMP_AV2_R_IN
SC1_L_RF_OUT
OUT_MUTE
SC1_R_RF_OUT
SC1_CVBS_RF_OUT
SSIF
FOR ITV
1002
H_CS_SDTV
V_SDTV
SFSKA 4M5
1009
+3V3STBY
+1V8_B
+1V8_A
+5VSW
+8VSW_TV
KEYBOARD
STATUS_2
LIGHT-SENSOR-SDM
SERVICE SMD
SOUND_ENABLE
PC-TV-LED
EXT_MUTE
TV_SC_COM
TV_IRQ
RC_IN
IR
BO
GO
RO
SC1_COMP_B_U_IN_1
SC1_COMP_AV1_G_Y_CVBS_IN
SC1_COMP_R_V_IN_1
SC1_FBL_IN_1
INTF_V_OUT
INTF_U_OUT
INTF_Y_OUT
INTF_V_IN
INTF_U_IN
INTF_Y_IN
HOUT
SANDCASTLE
CVBS-COMB
SC2_CVBS_MON_OUT
SC2_R_MON_OUT
SC2_L_MON_OUT
OUT_MUTE
MAIN_OUTR
MAIN_OUTL
SVHS_C_IN
SVHS_AV2_Y_CVBS_IN
SC2_R_IN
SC2_L_IN
SC1_CVBS_IN
AudioIN2R
AudioIN2L
SC2_C_IN
COUT-COMB
SC2_Y_IN
YOUT-COMB
SVHS_R_IN
SVHS_L_IN
3139 123 5804.2
E_14490_028.eps
030604

|  | w 3D-COMB | w/o 3D-COMB |
|---|---|---|
| 4002 | NO | YES |
| 4004 | YES | NO |
| 4005 | NO | YES |
| 4006 | YES | NO |
| 4007 | NO | YES |
| 4023 | YES | NO |

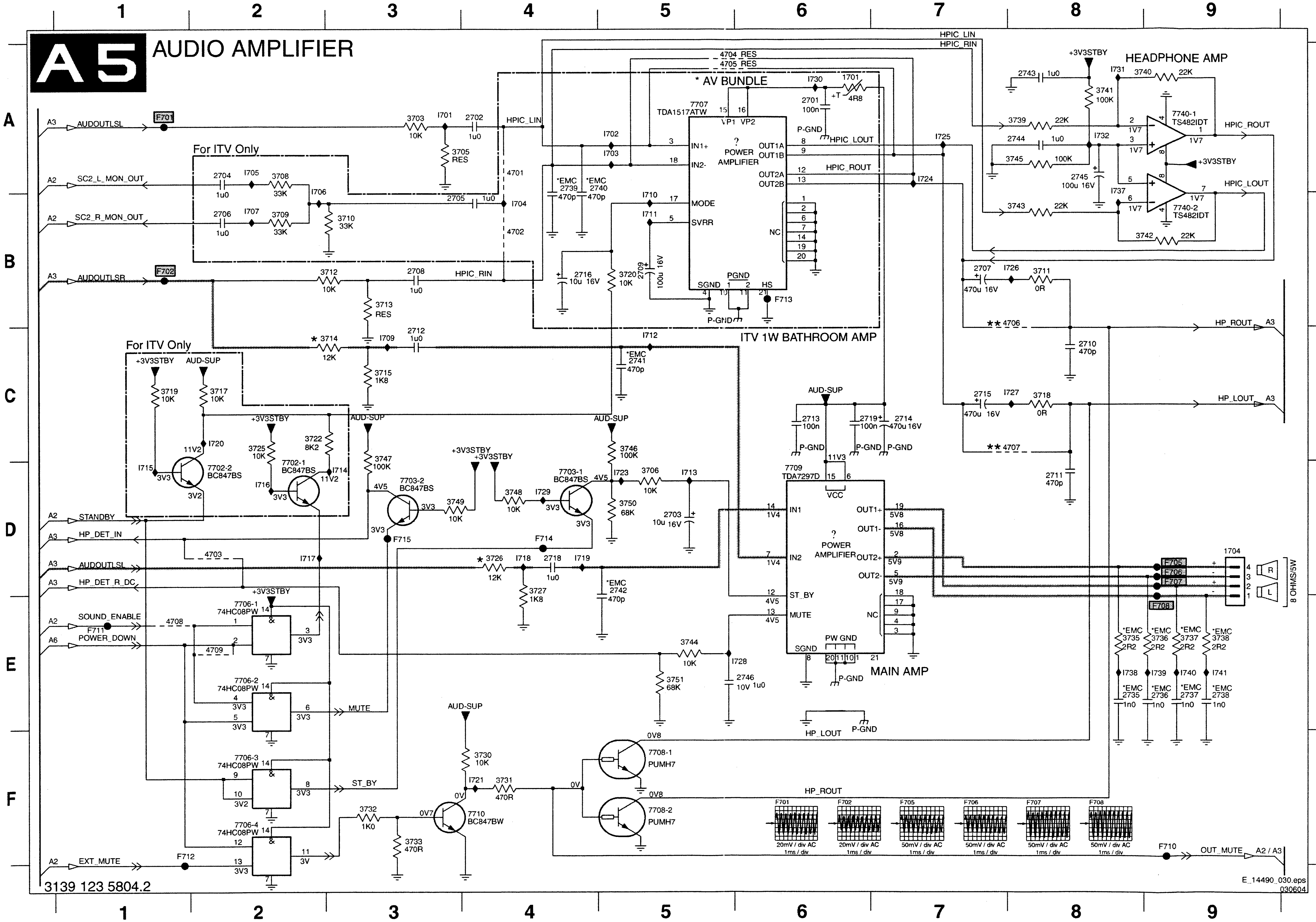
| | |
|---|---|
| 1001 | C4 |
| 1002 | F1 |
| 1009 | G3 |
| 2001 | D3 |
| 2002 | E9 |
| 2003 | F7 |
| 2004 | C5 |
| 2005 | C5 |
| 2006 | D4 |
| 2007 | C4 |
| 2008 | D3 |
| 2009 | D3 |
| 2010 | D4 |
| 2011 | D4 |
| 2012 | E2 |
| 2013 | G2 |
| 2014 | G9 |
| 2015 | G9 |
| 2016 | G9 |
| 2017 | F9 |
| 2018 | F9 |
| 2023 | E9 |
| 2024 | E2 |
| 2025 | E10 |
| 2026 | E10 |
| 2027 | E10 |
| 2029 | E9 |
| 2030 | D10 |
| 2031 | D10 |
| 2032 | D10 |
| 2033 | D10 |
| 2035 | D9 |
| 2041 | C10 |
| 2043 | D3 |
| 2044 | C10 |
| 2046 | D2 |
| 2047 | C10 |
| 2048 | B4 |
| 2052 | D9 |
| 2055 | E10 |
| 2060 | E4 |
| 2061 | E4 |
| 2063 | E5 |
| 2065 | G3 |
| 2066 | G4 |
| 2068 | C4 |
| 2070 | B3 |
| 2071 | C5 |
| 2072 | A5 |
| 2073 | B5 |
| 2074 | B6 |
| 2076 | B7 |
| 2077 | B9 |
| 2078 | A10 |
| 2079 | C2 |
| 2087 | F5 |
| 2099 | A10 |
| 2355 | G7 |
| 2356 | G6 |
| 2357 | G6 |
| 2358 | F6 |
| 2359 | F4 |
| 2370 | F5 |
| 2371 | F5 |
| 2372 | F5 |
| 2373 | F5 |
| 2374 | G6 |
| 2375 | G5 |
| 2378 | C9 |
| 2379 | C9 |
| 2380 | C9 |
| 2381 | C9 |
| 2382 | C5 |
| 2387 | F4 |
| 2388 | F4 |
| 2394 | C9 |
| 2395 | G2 |
| 2396 | G2 |
| 2397 | F9 |
| 2398 | F9 |
| 3000 | C2 |
| 3001 | D2 |
| 3002 | D2 |
| 3003 | D1 |
| 3004 | D1 |
| 3006 | D4 |
| 3007 | D4 |
| 3008 | E3 |
| 3009 | G7 |
| 3010 | E5 |
| 3011 | E5 |
| 3013 | E9 |
| 3014 | E10 |
| 3016 | B3 |
| 3024 | C2 |
| 3028 | E9 |
| 3035 | D10 |
| 3048 | D9 |
| 3053 | E4 |
| 3054 | D9 |
| 3056 | B2 |
| 3059 | D4 |
| 3060 | E5 |
| 3062 | E4 |
| 3067 | B9 |
| 3070 | A3 |
| 3072 | B3 |
| 3073 | B4 |
| 3074 | G4 |
| 3075 | A4 |
| 3076 | F5 |
| 3077 | A4 |
| 3078 | A4 |
| 3079 | A4 |
| 3080 | A5 |
| 3081 | B6 |
| 3082 | A6 |
| 3083 | A6 |
| 3084 | B7 |
| 3085 | A7 |
| 3086 | A7 |
| 3087 | A7 |
| 3088 | A8 |
| 3089 | C2 |
| 3091 | B9 |
| 3092 | B9 |
| 3093 | A10 |
| 3094 | C8 |
| 3096 | B7 |
| 3097 | A10 |
| 3098 | E11 |
| 3357 | B4 |
| 3358 | G4 |
| 3359 | F6 |
| 3370 | F6 |
| 3371 | F4 |
| 3372 | F4 |
| 3374 | G2 |
| 3389 | B9 |
| 3390 | F9 |
| 3391 | F9 |
| 3392 | F9 |
| 3393 | F9 |
| 3394 | C5 |
| 4002 | F6 |
| 4004 | G10 |
| 4005 | G10 |
| 4006 | G10 |
| 4007 | G10 |
| 4008 | A10 |
| 4022 | A6 |
| 5001 | B5 |
| 5002 | C5 |
| 5003 | D3 |
| 5004 | G2 |
| 5005 | E10 |
| 5006 | D10 |
| 5007 | C10 |
| 5008 | C10 |
| 5010 | E10 |
| 5060 | C4 |
| 5070 | A5 |
| 5071 | B6 |
| 5072 | B7 |
| 5370 | C9 |
| 5371 | C9 |
| 5372 | C9 |
| 6001 | C3 |
| 6002 | E11 |
| 6005 | G2 |
| 6073 | B2 |
| 6074 | B2 |
| 6075 | B2 |
| 6076 | B2 |
| 7001 | E2 |
| 7002-1 | E2 |
| 7002-2 | E1 |
| 7003 | E1 |
| 7005 | C1 |
| 7011 | D7 |
| 7070 | C2 |
| 7075 | B2 |
| 7099 | A10 |
| 7370-1 | F3 |
| 7370-2 | F3 |
| 7371-1 | F9 |
| 7371-2 | F10 |
| F002 | E3 |
| F003 | C5 |
| F004 | D4 |
| F005 | E9 |
| F006 | B4 |
| F007 | A5 |
| F008 | B4 |
| F009 | B4 |
| F010 | D3 |
| F011 | E2 |
| F012 | E2 |
| F013 | G6 |
| F014 | G6 |
| F019 | C9 |
| F020 | C9 |
| F021 | C9 |
| F022 | A10 |
| F023 | B7 |
| F074 | D9 |
| F099 | B11 |
| I001 | A5 |
| I002 | C2 |
| I003 | D10 |
| I004 | D10 |
| I005 | B4 |
| I006 | C2 |
| I007 | C4 |
| I008 | D9 |
| I009 | C5 |
| I010 | C5 |
| I011 | C5 |
| I013 | C9 |
| I015 | B7 |
| I017 | G6 |
| I018 | D4 |
| I019 | D4 |
| I020 | D5 |
| I021 | F6 |
| I022 | D5 |
| I023 | C10 |
| I024 | C10 |
| I025 | F5 |
| I026 | F5 |
| I027 | F7 |
| I028 | F6 |
| I029 | F7 |
| I030 | F8 |
| I031 | F8 |
| I032 | F7 |
| I033 | F7 |
| I034 | F7 |
| I035 | F8 |
| I036 | D9 |
| I037 | F8 |
| I039 | F8 |
| I040 | F8 |
| I041 | D9 |
| I042 | D5 |
| I043 | E5 |
| I044 | E5 |
| I045 | E10 |
| I046 | F9 |
| I047 | D9 |
| I048 | F9 |
| I049 | D9 |
| I050 | E9 |
| I051 | D10 |
| I053 | E9 |
| I054 | E9 |
| I055 | E9 |
| I056 | F7 |
| I057 | E9 |
| I058 | B8 |
| I059 | C8 |
| I062 | B6 |
| I063 | B4 |
| I064 | F5 |
| I065 | G6 |
| I066 | G5 |
| I067 | G4 |
| I068 | G3 |
| I069 | E5 |
| I071 | F5 |
| I072 | E5 |
| I077 | B6 |
| I088 | D1 |
| I348 | B8 |
| I349 | B8 |
| I350 | D2 |
| I351 | D2 |
| I352 | C3 |
| I353 | D1 |
| I354 | E4 |
| I355 | F4 |
| I356 | G6 |
| I359 | E10 |
| I360 | E10 |
| I361 | E11 |
| I362 | E11 |
| I363 | E10 |
| I371 | F6 |

## TV & Scaler Board: Histogram


A3
HISTOGRAM
1005
62684-452100F
TO 1103 OF IO BD
H1
1008
FOR SET WITH DMR FEATURE
1004
TO 1801 OF 3D COMB FILTER BD
CB
HISTOGRAM
7560
TDA9178T/N1
PICTURE IMPROVEMENT
7562
L7808CD2T
+12VSW
+8VSW_2
"560" ~ "569"
AUDIO PATH
7377-A
BC857BS
7377-B
BC857BS
7376-A
BC857BS
7376-B
BC857BS
7372-2
PUMH7
7372-1
PUMH7
AUDOUTLSR
AUDOUTLSL
MAIN_OUTR
MAIN_OUTL
7012
BC847BW
7013
BC847BW
7014
BC847BW
R_SDTV
G_SDTV
B_SDTV
HOUT
VSYNC
7016
NE555D
7017
NE555D
7015
NE555D
7018
BC847B
7019
BC847B
SANDCASTLE
V_SDTV
H_CS_SDTV
I341
I344
1V / div DC
5ms / div
1V / div DC
20us / div
FOR SET WITH DMR ONLY
7360
ADG734BRU
SPDT SWITCH
DMMI_G_Y_IN
DMMI_B_U_IN
DMMI_FBL_IN
DMMI_RGB_SW
DMMI_R_V_IN
3139 123 5804.2
E_14490_029.eps
030604

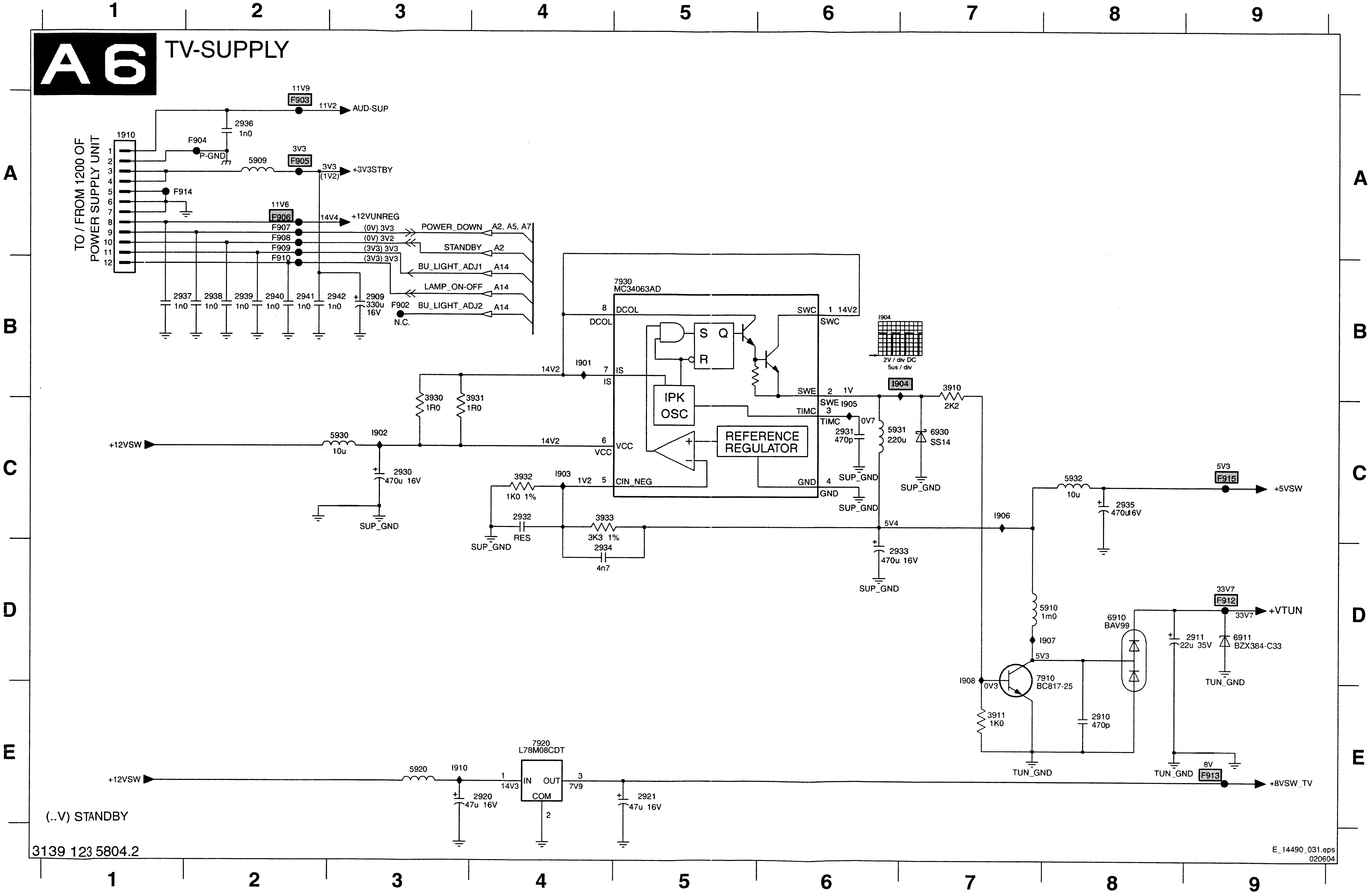
| | |
|---|---|
| 1004 | G1 |
| 1005 | A1 |
| 1008 | D1 |
| 2019 | A9 |
| 2020 | A7 |
| 2021 | C9 |
| 2022 | C10 |
| 2028 | B9 |
| 2034 | B9 |
| 2040 | A4 |
| 2042 | D8 |
| 2045 | B11 |
| 2053 | G2 |
| 2054 | C1 |
| 2062 | B8 |
| 2082 | B2 |
| 2083 | C2 |
| 2084 | D2 |
| 2085 | D2 |
| 2086 | F2 |
| 2089 | E2 |
| 2360 | E9 |
| 2361 | F11 |
| 2363 | G9 |
| 2364 | G11 |
| 2365 | G11 |
| 2366 | G10 |
| 2367 | E9 |
| 2368 | G9 |
| 2376 | F5 |
| 2377 | G5 |
| 2386 | G5 |
| 2392 | F5 |
| 2560 | C6 |
| 2561 | C6 |
| 2562 | C6 |
| 2563 | D4 |
| 2564 | C5 |
| 3005 | B7 |
| 3012 | E11 |
| 3015 | A6 |
| 3017 | A6 |
| 3019 | A4 |
| 3020 | A7 |
| 3021 | A8 |
| 3022 | A7 |
| 3023 | A7 |
| 3025 | A10 |
| 3026 | B9 |
| 3027 | B9 |
| 3029 | B11 |
| 3030 | C10 |
| 3031 | E11 |
| 3032 | C10 |
| 3033 | E11 |
| 3034 | E11 |
| 3036 | E11 |
| 3037 | A7 |
| 3038 | C11 |
| 3049 | B4 |
| 3050 | B4 |
| 3051 | B4 |
| 3052 | A5 |
| 3055 | E11 |
| 3057 | C8 |
| 3058 | D10 |
| 3061 | D10 |
| 3063 | D9 |
| 3064 | G2 |
| 3065 | D9 |
| 3066 | C11 |
| 3068 | D6 |
| 3069 | E6 |
| 3071 | G2 |
| 3360 | E11 |
| 3361 | E11 |
| 3362 | E11 |
| 3363 | E11 |
| 3364 | E11 |
| 3365 | E11 |
| 3366 | E9 |
| 3367 | E9 |
| 3368 | F9 |
| 3369 | F9 |
| 3373 | F9 |
| 3378 | G5 |
| 3380 | F4 |
| 3381 | F4 |
| 3382 | G4 |
| 3383 | G4 |
| 3386 | F5 |
| 3560 | D6 |
| 3561 | D6 |
| 3562 | D5 |
| 3563 | D5 |
| 3564 | D5 |
| 3565 | D4 |
| 3566 | D4 |
| 4009 | E2 |
| 4010 | E2 |
| 4011 | F2 |
| 4012 | F2 |
| 4015 | D7 |
| 4016 | D11 |
| 4360 | G8 |
| 4361 | G8 |
| 4362 | G8 |
| 4363 | G8 |
| 4568 | E5 |
| 5360 | E9 |
| 5560 | B5 |
| 6020 | A8 |
| 6021 | C11 |
| 6563 | D5 |
| 6564 | D5 |
| 7012 | A5 |
| 7013 | A5 |
| 7014 | A6 |
| 7015 | C8 |
| 7016 | A8 |
| 7017 | A10 |
| 7018 | B7 |
| 7019 | C10 |
| 7068 | D5 |
| 7360 | E10 |
| 7372-1 | G6 |
| 7372-2 | F6 |
| 7376-A | G4 |
| 7376-B | G4 |
| 7377-A | F4 |
| 7377-B | F4 |
| 7560 | C4 |
| 7562 | B5 |
| 7563 | D4 |
| F001 | D5 |
| F018 | C6 |
| F024 | A2 |
| F025 | A2 |
| F026 | A2 |
| F027 | A2 |
| F028 | A2 |
| F029 | A2 |
| F030 | B2 |
| F031 | B2 |
| F032 | B2 |
| F033 | B2 |
| F034 | B2 |
| F035 | B2 |
| F036 | B2 |
| F037 | C2 |
| F038 | C2 |
| F039 | C2 |
| F040 | C2 |
| F041 | C2 |
| F042 | C2 |
| F043 | C1 |
| F044 | C2 |
| F045 | C2 |
| F046 | C2 |
| F047 | D2 |
| F048 | D1 |
| F049 | D2 |
| F050 | D2 |
| F051 | D2 |
| F052 | D2 |
| F053 | D2 |
| F055 | C1 |
| F056 | D2 |
| F057 | D2 |
| F058 | E1 |
| F059 | D7 |
| F060 | E1 |
| F061 | E1 |
| F062 | E1 |
| F063 | E1 |
| F064 | D2 |
| F067 | F1 |
| F068 | F1 |
| F069 | F1 |
| F070 | D7 |
| F071 | F1 |
| F072 | G1 |
| F073 | F2 |
| F075 | G1 |
| F076 | F1 |
| F090 | G1 |
| F093 | G1 |
| F094 | G1 |
| F095 | G1 |
| F096 | G1 |
| F097 | E1 |
| I060 | B3 |
| I070 | E9 |
| I073 | F4 |
| I074 | G4 |
| I075 | E9 |
| I076 | E9 |
| I078 | F9 |
| I079 | E8 |
| I080 | E8 |
| I081 | E8 |
| I082 | F10 |
| I083 | F9 |
| I084 | F11 |
| I085 | F11 |
| I086 | F10 |
| I087 | A5 |
| I089 | A7 |
| I091 | G10 |
| I092 | F9 |
| I094 | A7 |
| I095 | F4 |
| I096 | A8 |
| I097 | A9 |
| I098 | A10 |
| I099 | B9 |
| I340 | B11 |
| I341 | B11 |
| I342 | C8 |
| I343 | C9 |
| I344 | D9 |
| I345 | C10 |
| I346 | C10 |
| I347 | C11 |
| I357 | E6 |
| I358 | D5 |

## TV & Scaler Board: Audio Amplifier


A5
AUDIO AMPLIFIER
1 2 3 4 5 6 7 8 9
A B C D E F
AUDOUTLSL
F701
SC2_L_MON_OUT
SC2_R_MON_OUT
AUDOUTLSR
F702
For ITV Only
3703 10K
3705 RES
2702 1u0
HPIC_LIN
HPIC_RIN
2704 1u0
3708 33K
2706 1u0
3709 33K
3710 33K
2705 1u0
4701
4702
4704_RES
4705_RES
* AV BUNDLE
7707 TDA1517ATW
POWER AMPLIFIER
IN1+
IN2-
MODE
SVRR
OUT1A
OUT1B
OUT2A
OUT2B
NC
SGND
PGND
HS
P-GND
F713
2701 100n
1701 4R8
*EMC 2739 470p
*EMC 2740 470p
2716 10u 16V
3720 10K
2709 100u 16V
HPIC_LOUT
HPIC_ROUT
ITV 1W BATHROOM AMP
3712 10K
2708 1u0
3713 RES
* 3714 12K
2712 1u0
3715 1K8
*EMC 2741 470p
HEADPHONE AMP
+3V3STBY
2743 1u0
3740 22K
3741 100K
3739 22K
2744 1u0
3745 100K
2745 100u 16V
3743 22K
3742 22K
7740-1 TS482IDT
7740-2 TS482IDT
2707 470u 16V
3711 0R
** 4706
2710 470p
HP_ROUT A3
2715 470u 16V
3718 0R
** 4707
2711 470p
HP_LOUT A3
AUD-SUP
2713 100n
2719 100n
2714 470u 16V
7709 TDA7297D
VCC
IN1
IN2
ST_BY
MUTE
OUT1+
OUT1-
OUT2+
OUT2-
POWER AMPLIFIER
MAIN AMP
SGND
PW GND
1704
F705
F706
F707
F708
8 OHMS/5W
R
L
*EMC 3735 2R2
*EMC 3736 2R2
*EMC 3737 2R2
*EMC 3738 2R2
*EMC 2735 1n0
*EMC 2736 1n0
*EMC 2737 1n0
*EMC 2738 1n0
3719 10K
3717 10K
7702-2 BC847BS
7702-1 BC847BS
3725 10K
3722 8K2
3747 100K
7703-2 BC847BS
3749 10K
3748 10K
7703-1 BC847BS
3746 100K
3706 10K
3750 68K
2703 10u 16V
STANDBY
HP_DET_IN
4703
AUDOUTLSL
HP_DET_R_DC
SOUND_ENABLE
F711
POWER_DOWN
4708
4709
EXT_MUTE
F712
F714
F715
* 3726 12K
2718 1u0
3727 1K8
*EMC 2742 470p
7706-1 74HC08PW
7706-2 74HC08PW
7706-3 74HC08PW
7706-4 74HC08PW
MUTE
ST_BY
3744 10K
3751 68K
2746 10V 1u0
HP_LOUT
P-GND
3730 10K
3731 470R
3732 1K0
3733 470R
7710 BC847BW
7708-1 PUMH7
7708-2 PUMH7
HP_ROUT
F701 F702 F705 F706 F707 F708
20mV / div AC 1ms / div
50mV / div AC 1ms / div
F710
OUT_MUTE
A2 / A3
3139 123 5804.2
E_14490_030.eps 030604

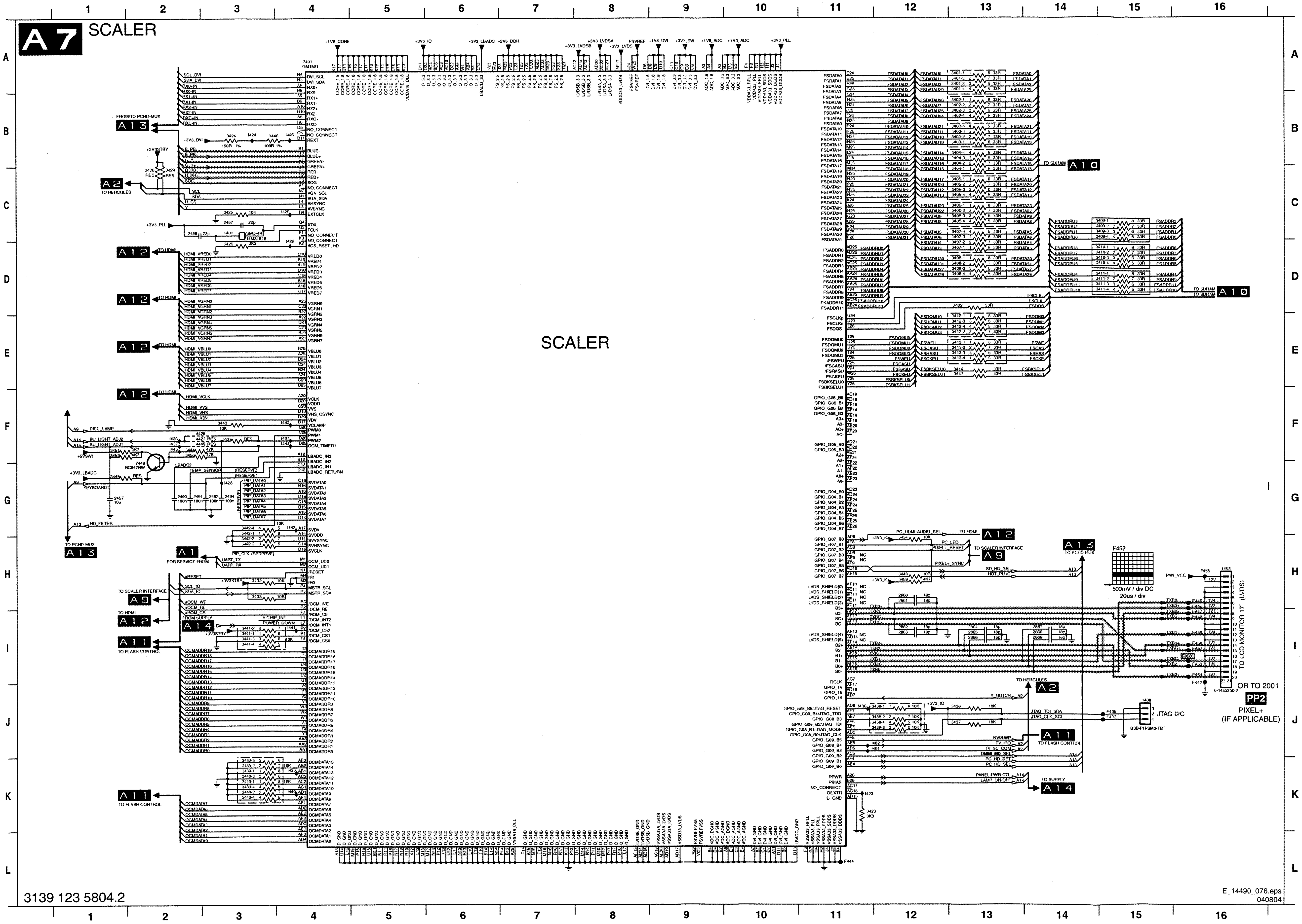
| | |
|---|---|
| 1701 | A6 |
| 1704 | D9 |
| 2701 | A6 |
| 2702 | A4 |
| 2703 | D5 |
| 2704 | A2 |
| 2705 | B3 |
| 2706 | B2 |
| 2707 | B7 |
| 2708 | B3 |
| 2709 | B5 |
| 2710 | C8 |
| 2711 | D8 |
| 2712 | C3 |
| 2713 | C6 |
| 2714 | C7 |
| 2715 | C7 |
| 2716 | B4 |
| 2718 | D4 |
| 2719 | C6 |
| 2735 | E8 |
| 2736 | E9 |
| 2737 | E9 |
| 2738 | E9 |
| 2739 | A4 |
| 2740 | A5 |
| 2741 | C5 |
| 2742 | D5 |
| 2743 | A8 |
| 2744 | A8 |
| 2745 | A8 |
| 2746 | E6 |
| 3703 | A3 |
| 3705 | A3 |
| 3706 | D5 |
| 3708 | A2 |
| 3709 | B2 |
| 3710 | B3 |
| 3711 | B8 |
| 3712 | B3 |
| 3713 | B3 |
| 3714 | C3 |
| 3715 | C3 |
| 3717 | C2 |
| 3718 | C8 |
| 3719 | C1 |
| 3720 | B5 |
| 3722 | C2 |
| 3725 | C2 |
| 3726 | D4 |
| 3727 | D4 |
| 3730 | F4 |
| 3731 | F4 |
| 3732 | F3 |
| 3733 | F3 |
| 3735 | E8 |
| 3736 | E9 |
| 3737 | E9 |
| 3738 | E9 |
| 3739 | A8 |
| 3740 | A8 |
| 3741 | A8 |
| 3742 | B9 |
| 3743 | B8 |
| 3744 | E5 |
| 3745 | A8 |
| 3746 | C5 |
| 3747 | D3 |
| 3748 | D4 |
| 3749 | D3 |
| 3750 | D5 |
| 3751 | E5 |
| 4701 | A4 |
| 4702 | B4 |
| 4703 | D2 |
| 4704 | A5 |
| 4705 | A5 |
| 4706 | B8 |
| 4707 | C8 |
| 4708 | E1 |
| 4709 | E2 |
| 7702-1 | D2 |
| 7702-2 | D2 |
| 7703-1 | D4 |
| 7703-2 | D3 |
| 7706-1 | E2 |
| 7706-2 | E2 |
| 7706-3 | F2 |
| 7706-4 | F2 |
| 7707 | A5 |
| 7708-1 | F5 |
| 7708-2 | F5 |
| 7709 | D6 |
| 7710 | F4 |
| 7740-1 | A9 |
| 7740-2 | B9 |
| F701 | A1 |
| F702 | B1 |
| F705 | D9 |
| F706 | D9 |
| F707 | D9 |
| F708 | E9 |
| F710 | F9 |
| F711 | E1 |
| F712 | F1 |
| F713 | B6 |
| F714 | D4 |
| F715 | D3 |
| I701 | A3 |
| I702 | A5 |
| I703 | A5 |
| I704 | B4 |
| I705 | A2 |
| I706 | A2 |
| I707 | B2 |
| I709 | C3 |
| I710 | B5 |
| I711 | B5 |
| I712 | C5 |
| I713 | D5 |
| I714 | D3 |
| I715 | D1 |
| I716 | D2 |
| I717 | D2 |
| I718 | D4 |
| I719 | D4 |
| I720 | C2 |
| I721 | F4 |
| I723 | D5 |
| I724 | A7 |
| I725 | A7 |
| I726 | B8 |
| I727 | C8 |
| I728 | E6 |
| I729 | D4 |
| I730 | A6 |
| I731 | A8 |
| I732 | A8 |
| I737 | A8 |
| I738 | E8 |
| I739 | E9 |
| I740 | E9 |
| I741 | E9 |

## TV & Scaler Board: TV-Supply


A6
TV-SUPPLY
TO / FROM 1200 OF POWER SUPPLY UNIT
1910
1 2 3 4 5 6 7 8 9 10 11 12
F904
P-GND
2936
1n0
11V9
F903
11V2
AUD-SUP
5909
3V3
F905
3V3
(1V2)
+3V3STBY
F914
11V6
F906
14V4
+12VUNREG
F907
(0V) 3V3
POWER_DOWN
A2, A5, A7
F908
(0V) 3V2
STANDBY
A2
F909
(3V3) 3V3
BU_LIGHT_ADJ1
A14
F910
(3V3) 3V3
LAMP_ON-OFF
A14
F902
N.C.
BU_LIGHT_ADJ2
A14
2937 1n0
2938 1n0
2939 1n0
2940 1n0
2941 1n0
2942 1n0
2909 330u 16V
7930
MC34063AD
8 DCOL
DCOL
SWC
1 14V2
SWC
7 IS
IS
14V2
I901
S Q
R
IPK OSC
REFERENCE REGULATOR
SWE
2 1V
SWE
I905
3
TIMC
TIMC
6 VCC
VCC
5 CIN_NEG
GND
4
GND
I904
2V / div DC
5us / div
3910
2K2
3930 1R0
3931 1R0
+12VSW
5930
10u
I902
14V2
2930
470u 16V
SUP_GND
0V7
2931
470p
5931
220u
6930
SS14
SUP_GND
SUP_GND
SUP_GND
3932
1K0 1%
I903
1V2
2932
RES
SUP_GND
3933
3K3 1%
2934
4n7
5V4
2933
470u 16V
SUP_GND
I906
5932
10u
2935
470u16V
5V3
F915
+5VSW
5910
1m0
I907
5V3
6910
BAV99
33V7
F912
33V7
+VTUN
2911
22u 35V
6911
BZX384-C33
TUN_GND
I908
0V3
7910
BC817-25
3911
1K0
2910
470p
TUN_GND
TUN_GND
8V
F913
+8VSW_TV
+12VSW
5920
I910
2920
47u 16V
7920
L78M08CDT
1
14V3
IN
OUT
COM
3
7V9
2
2921
47u 16V
(..V) STANDBY
3139 123 5804.2
E_14490_031.eps
020604
1 2 3 4 5 6 7 8 9
A B C D E

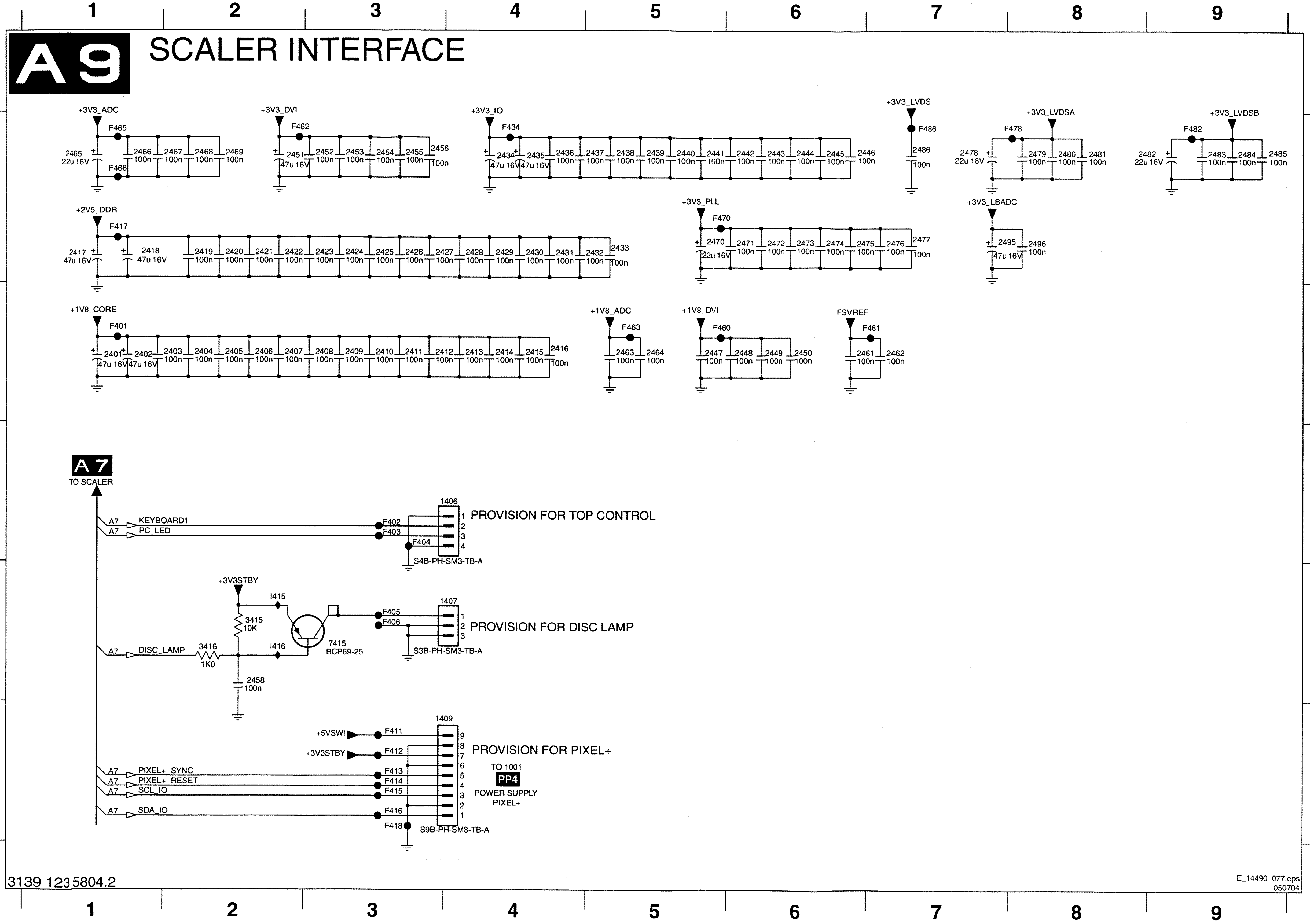
| | |
|---|---|
| 1910 | A1 |
| 2909 | B3 |
| 2910 | E8 |
| 2911 | D9 |
| 2920 | E4 |
| 2921 | E5 |
| 2930 | C3 |
| 2931 | C6 |
| 2932 | C4 |
| 2933 | D6 |
| 2934 | D4 |
| 2935 | C8 |
| 2936 | A2 |
| 2937 | B1 |
| 2938 | B2 |
| 2939 | B2 |
| 2940 | B2 |
| 2941 | B2 |
| 2942 | B3 |
| 3910 | B7 |
| 3911 | E7 |
| 3930 | B3 |
| 3931 | B4 |
| 3932 | C4 |
| 3933 | C4 |
| 5909 | A2 |
| 5910 | D8 |
| 5920 | E3 |
| 5930 | C3 |
| 5931 | C6 |
| 5932 | C8 |
| 6910 | D8 |
| 6911 | D9 |
| 6930 | C7 |
| 7910 | D7 |
| 7920 | E4 |
| 7930 | B5 |
| F902 | B3 |
| F903 | A2 |
| F904 | A2 |
| F905 | A2 |
| F906 | A2 |
| F907 | A2 |
| F908 | A2 |
| F909 | A2 |
| F910 | B2 |
| F912 | D9 |
| F913 | E9 |
| F914 | A1 |
| F915 | C9 |
| I901 | B4 |
| I902 | C3 |
| I903 | C4 |
| I904 | B7 |
| I905 | C6 |
| I906 | C7 |
| I907 | D8 |
| I908 | D7 |
| I910 | E3 |

## TV & Scaler Board: Scaler


A7
SCALER
SCALER
7401
GM1501
A13
FROM/TO PCHD-MUX
A2
TO HERCULES
A12
TO HDMI
A10
TO SDRAM
A1
FOR SERVICE FROM
A9
TO SCALER INTERFACE
A14
FROM SUPPLY
A11
TO FLASH CONTROL
TO PCHD-MUX
TO SUPPLY
F452
500mV / div DC
20us / div
TO LCD MONITOR 17" (LVDS)
OR TO 2001
PP2
PIXEL+
(IF APPLICABLE)
JTAG I2C
3139 123 5804.2
E_14490_076.eps
040804

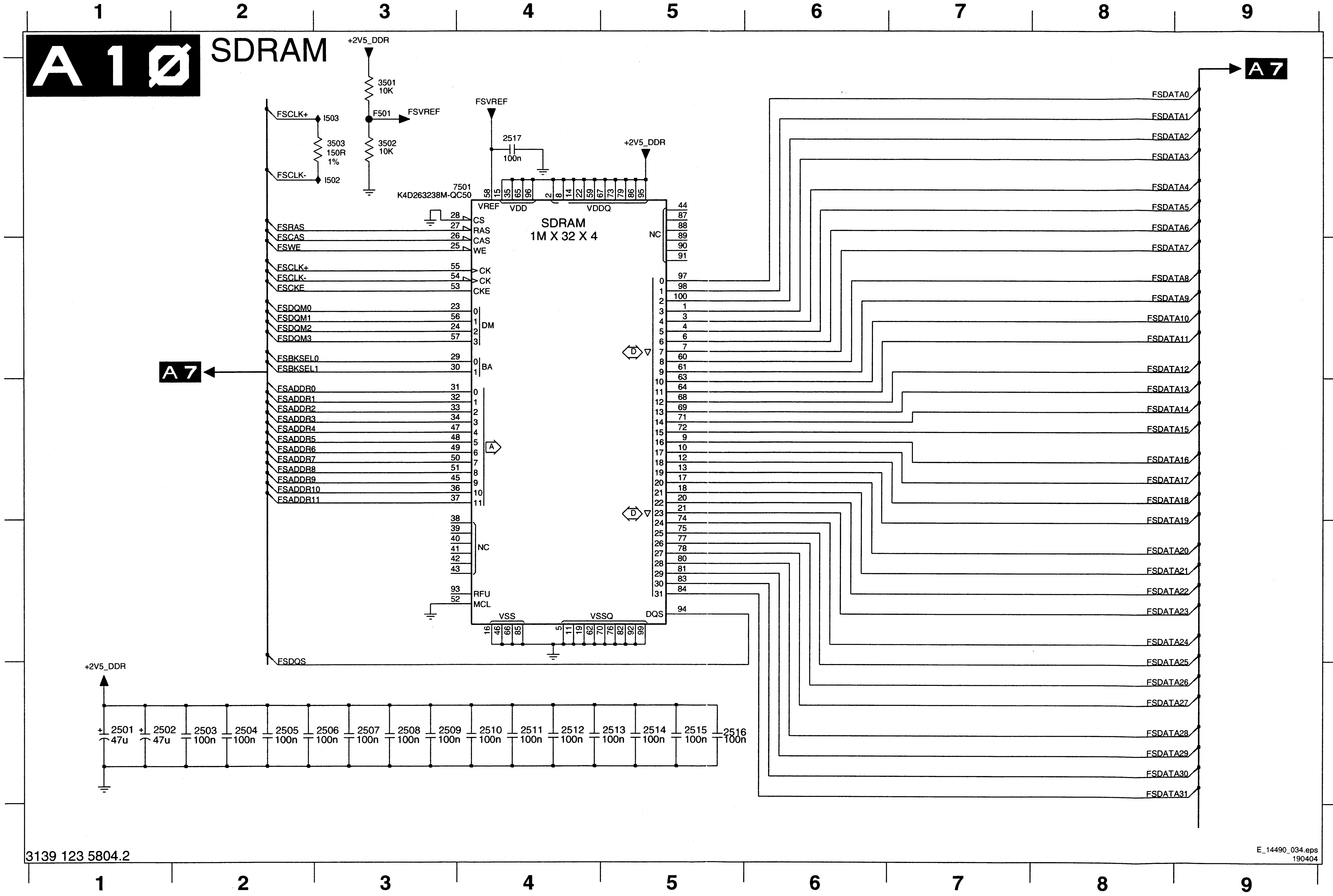
| | |
|---|---|
| 1401 | C3 |
| 1403 | H16 |
| 1408 | J15 |
| 2457 | G1 |
| 2487 | C3 |
| 2488 | C2 |
| 2490 | G2 |
| 2491 | G2 |
| 2492 | G3 |
| 2494 | G3 |
| 2860 | H12 |
| 2861 | H12 |
| 2862 | I12 |
| 2863 | I12 |
| 2864 | I13 |
| 2865 | I13 |
| 2866 | I13 |
| 2867 | I14 |
| 2868 | I14 |
| 2869 | I14 |
| 3401-1 | A13 |
| 3401-2 | A13 |
| 3401-3 | A13 |
| 3401-4 | A13 |
| 3402-1 | B13 |
| 3402-2 | B13 |
| 3402-3 | B13 |
| 3402-4 | B13 |
| 3403-1 | B13 |
| 3403-2 | B13 |
| 3403-3 | B13 |
| 3403-4 | B13 |
| 3404-1 | C13 |
| 3404-2 | B13 |
| 3404-3 | B13 |
| 3404-4 | B13 |
| 3405-1 | C13 |
| 3405-2 | C13 |
| 3405-3 | C13 |
| 3405-4 | C13 |
| 3406-1 | C13 |
| 3406-2 | C13 |
| 3406-3 | C13 |
| 3406-4 | C13 |
| 3407-1 | D13 |
| 3407-2 | D13 |
| 3407-3 | C13 |
| 3407-4 | C13 |
| 3408-1 | D13 |
| 3408-2 | D13 |
| 3408-3 | D13 |
| 3408-4 | D13 |
| 3409-1 | C15 |
| 3409-2 | C15 |
| 3409-3 | C15 |
| 3409-4 | C15 |
| 3410-1 | D15 |
| 3410-2 | D15 |
| 3410-3 | D15 |
| 3410-4 | D15 |
| 3411-1 | D15 |
| 3411-2 | D15 |
| 3411-3 | D15 |
| 3411-4 | D15 |
| 3412-1 | E13 |
| 3412-2 | E13 |
| 3412-3 | E13 |
| 3412-4 | E13 |
| 3413-1 | E13 |
| 3413-2 | E13 |
| 3413-3 | E13 |
| 3413-4 | E13 |
| 3414 | E13 |
| 3422 | D13 |
| 3423 | K11 |
| 3424 | B3 |
| 3425 | C3 |
| 3426 | D3 |
| 3427 | F3 |
| 3428 | C2 |
| 3429 | C2 |
| 3432 | H3 |
| 3433 | H3 |
| 3434 | H12 |
| 3436 | J13 |
| 3437 | J13 |
| 3438-1 | J12 |
| 3438-2 | J12 |
| 3438-3 | J12 |
| 3438-4 | J12 |
| 3439-1 | K3 |
| 3439-2 | K3 |
| 3439-3 | K3 |
| 3439-4 | K3 |
| 3440-1 | K3 |
| 3440-2 | K3 |
| 3440-3 | K3 |
| 3440-4 | K3 |
| 3441-1 | I3 |
| 3441-2 | I3 |
| 3441-3 | I3 |
| 3441-4 | I3 |
| 3442-1 | G3 |
| 3442-2 | H3 |
| 3442-3 | H3 |
| 3442-4 | G3 |
| 3443 | F3 |
| 3444 | F2 |
| 3445 | G1 |
| 3446 | B3 |
| 3447 | E13 |
| 3448 | H12 |
| 3450 | F2 |
| 3451 | F1 |
| 3452 | F1 |
| 3459 | H12 |
| 4427 | F2 |
| 4428 | F2 |
| 4445 | F2 |
| 7401 | A4 |
| 7449 | G2 |
| F436 | J15 |
| F437 | J15 |
| F442 | J16 |
| F444 | L11 |
| F445 | H16 |
| F446 | H16 |
| F447 | I16 |
| F448 | I16 |
| F449 | I16 |
| F450 | I16 |
| F451 | I16 |
| F452 | I16 |
| F453 | I16 |
| F454 | I16 |
| F455 | H16 |
| I423 | K11 |
| I424 | B3 |
| I425 | C4 |
| I426 | C4 |
| I427 | F4 |
| I428 | G3 |
| I436 | F2 |
| I437 | F2 |
| I438 | J11 |
| I439 | K4 |
| I440 | K4 |
| I441 | I4 |
| I442 | G4 |
| I443 | F4 |
| I444 | F4 |
| I445 | F2 |
| I446 | B4 |

## TV & Scaler Board: Scaler Interface


A9
SCALER INTERFACE
1 2 3 4 5 6 7 8 9
A B C D E
+3V3_ADC
F465
F466
2465 22u 16V
2466 100n
2467 100n
2468 100n
2469 100n
+3V3_DVI
F462
2451 47u 16V
2452 100n
2453 100n
2454 100n
2455 100n
2456 100n
+3V3_IO
F434
2434 47u 16V
2435 47u 16V
2436 100n
2437 100n
2438 100n
2439 100n
2440 100n
2441 100n
2442 100n
2443 100n
2444 100n
2445 100n
2446 100n
+3V3_LVDS
F486
2486 100n
+3V3_LVDSA
F478
2478 22u 16V
2479 100n
2480 100n
2481 100n
+3V3_LVDSB
F482
2482 22u 16V
2483 100n
2484 100n
2485 100n
+2V5_DDR
F417
2417 47u 16V
2418 47u 16V
2419 100n
2420 100n
2421 100n
2422 100n
2423 100n
2424 100n
2425 100n
2426 100n
2427 100n
2428 100n
2429 100n
2430 100n
2431 100n
2432 100n
2433 100n
+3V3_PLL
F470
2470 22u 16V
2471 100n
2472 100n
2473 100n
2474 100n
2475 100n
2476 100n
2477 100n
+3V3_LBADC
2495 47u 16V
2496 100n
+1V8_CORE
F401
2401 47u 16V
2402 47u 16V
2403 100n
2404 100n
2405 100n
2406 100n
2407 100n
2408 100n
2409 100n
2410 100n
2411 100n
2412 100n
2413 100n
2414 100n
2415 100n
2416 100n
+1V8_ADC
F463
2463 100n
2464 100n
+1V8_DVI
F460
2447 100n
2448 100n
2449 100n
2450 100n
FSVREF
F461
2461 100n
2462 100n
A7
TO SCALER
KEYBOARD1
PC_LED
F402
F403
F404
1406
PROVISION FOR TOP CONTROL
S4B-PH-SM3-TB-A
+3V3STBY
I415
3415 10K
7415 BCP69-25
I416
DISC_LAMP
3416 1K0
2458 100n
F405
F406
1407
PROVISION FOR DISC LAMP
S3B-PH-SM3-TB-A
+5VSWI
+3V3STBY
F411
F412
F413
F414
F415
F416
F418
1409
PROVISION FOR PIXEL+
TO 1001
PP4
POWER SUPPLY PIXEL+
PIXEL+_SYNC
PIXEL+_RESET
SCL_IO
SDA_IO
S9B-PH-SM3-TB-A
3139 123 5804.2
E_14490_077.eps 050704

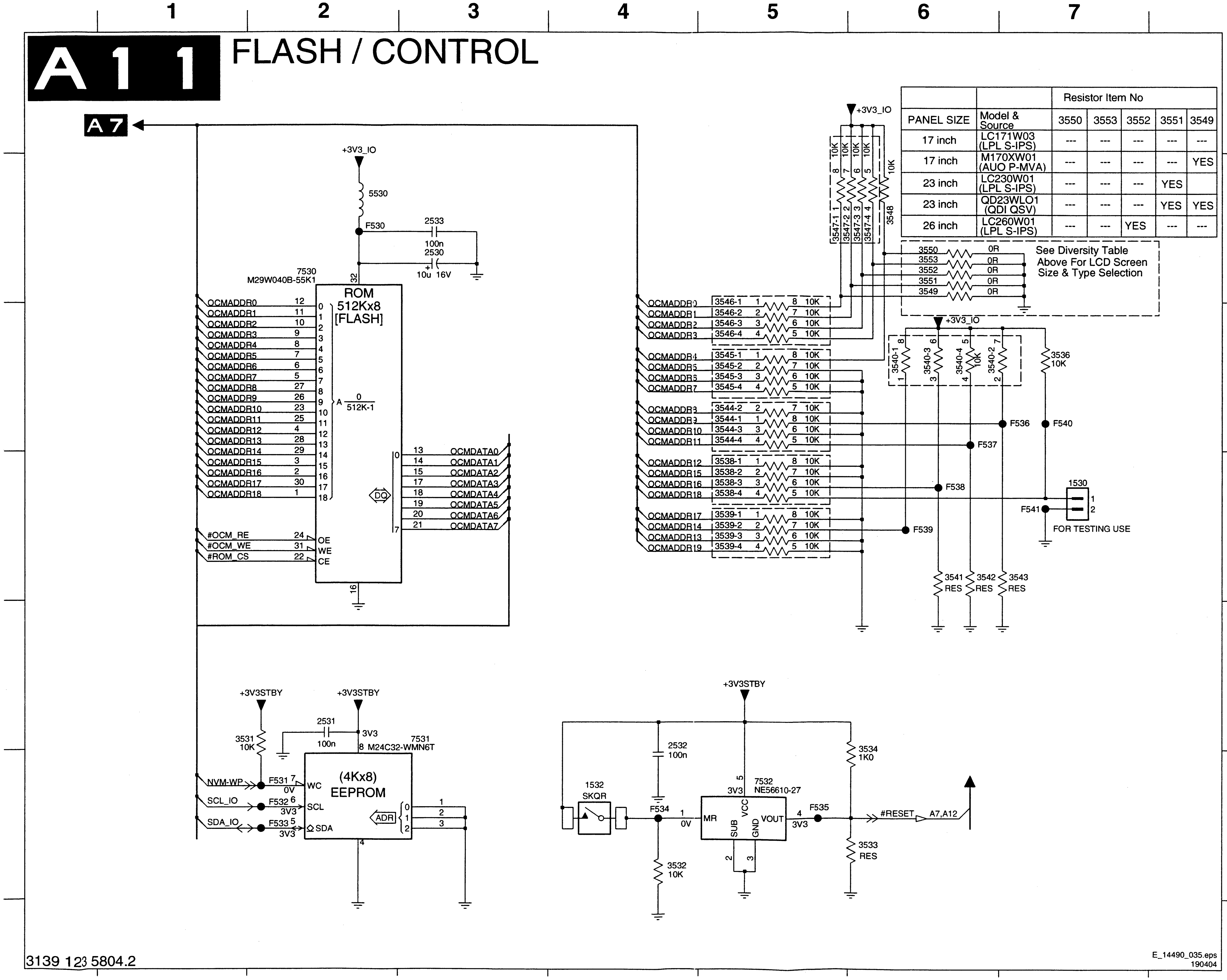
| | |
|---|---|
| 1406 | C4 |
| 1407 | D4 |
| 1409 | E4 |
| 2401 | B1 |
| 2402 | B1 |
| 2403 | B2 |
| 2404 | B2 |
| 2405 | B2 |
| 2406 | B2 |
| 2407 | B2 |
| 2408 | B3 |
| 2409 | B3 |
| 2410 | B3 |
| 2411 | B3 |
| 2412 | B3 |
| 2413 | B4 |
| 2414 | B4 |
| 2415 | B4 |
| 2416 | B4 |
| 2417 | A1 |
| 2418 | A1 |
| 2419 | A2 |
| 2420 | A2 |
| 2421 | A2 |
| 2422 | A2 |
| 2423 | A3 |
| 2424 | A3 |
| 2425 | A3 |
| 2426 | A3 |
| 2427 | A3 |
| 2428 | A4 |
| 2429 | A4 |
| 2430 | A4 |
| 2431 | A4 |
| 2432 | A5 |
| 2433 | A5 |
| 2434 | A4 |
| 2435 | A4 |
| 2436 | A4 |
| 2437 | A5 |
| 2438 | A5 |
| 2439 | A5 |
| 2440 | A5 |
| 2441 | A5 |
| 2442 | A6 |
| 2443 | A6 |
| 2444 | A6 |
| 2445 | A6 |
| 2446 | A7 |
| 2447 | B5 |
| 2448 | B6 |
| 2449 | B6 |
| 2450 | B6 |
| 2451 | A2 |
| 2452 | A3 |
| 2453 | A3 |
| 2454 | A3 |
| 2455 | A3 |
| 2456 | A3 |
| 2458 | D2 |
| 2461 | B6 |
| 2462 | B7 |
| 2463 | B5 |
| 2464 | B5 |
| 2465 | A1 |
| 2466 | A1 |
| 2467 | A2 |
| 2468 | A2 |
| 2469 | A2 |
| 2470 | A5 |
| 2471 | A6 |
| 2472 | A6 |
| 2473 | A6 |
| 2474 | A6 |
| 2475 | A6 |
| 2476 | A7 |
| 2477 | A7 |
| 2478 | A7 |
| 2479 | A8 |
| 2480 | A8 |
| 2481 | A8 |
| 2482 | A9 |
| 2483 | A9 |
| 2484 | A9 |
| 2485 | A9 |
| 2486 | A7 |
| 2495 | A7 |
| 2496 | A8 |
| 3415 | D2 |
| 3416 | D2 |
| 7415 | D3 |
| F401 | B1 |
| F402 | C3 |
| F403 | C3 |
| F404 | C3 |
| F405 | D3 |
| F406 | D3 |
| F411 | E3 |
| F412 | E3 |
| F413 | E3 |
| F414 | E3 |
| F415 | E3 |
| F416 | E3 |
| F417 | A1 |
| F418 | E3 |
| F434 | A4 |
| F460 | B5 |
| F461 | B7 |
| F462 | A2 |
| F463 | B5 |
| F465 | A1 |
| F466 | A1 |
| F470 | A5 |
| F478 | A8 |
| F482 | A9 |
| F486 | A7 |
| I415 | D2 |
| I416 | D2 |

## TV & Scaler Board: SDRAM


A 10
SDRAM
+2V5_DDR
3501
10K
F501
FSVREF
3502
10K
3503
150R
1%
FSCLK+
FSCLK-
I503
I502
2517
100n
7501
K4D263238M-QC50
SDRAM
1M X 32 X 4
VREF
VDD
VDDQ
CS
RAS
CAS
WE
CK
CKE
DM
BA
NC
RFU
MCL
VSS
VSSQ
DQS
FSRAS
FSCAS
FSWE
FSCKE
FSDQM0
FSDQM1
FSDQM2
FSDQM3
FSBKSEL0
FSBKSEL1
FSADDR0
FSADDR1
FSADDR2
FSADDR3
FSADDR4
FSADDR5
FSADDR6
FSADDR7
FSADDR8
FSADDR9
FSADDR10
FSADDR11
FSDQS
A 7
FSDATA0
FSDATA1
FSDATA2
FSDATA3
FSDATA4
FSDATA5
FSDATA6
FSDATA7
FSDATA8
FSDATA9
FSDATA10
FSDATA11
FSDATA12
FSDATA13
FSDATA14
FSDATA15
FSDATA16
FSDATA17
FSDATA18
FSDATA19
FSDATA20
FSDATA21
FSDATA22
FSDATA23
FSDATA24
FSDATA25
FSDATA26
FSDATA27
FSDATA28
FSDATA29
FSDATA30
FSDATA31
2501 47u
2502 47u
2503 100n
2504 100n
2505 100n
2506 100n
2507 100n
2508 100n
2509 100n
2510 100n
2511 100n
2512 100n
2513 100n
2514 100n
2515 100n
2516 100n
3139 123 5804.2
E_14490_034.eps
190404

| | |
|---|---|
| 2501 | E |
| 2502 | E |
| 2503 | E |
| 2504 | E |
| 2505 | E |
| 2506 | E |
| 2507 | E |
| 2508 | E |
| 2509 | E |
| 2510 | E |
| 2511 | E |
| 2512 | E |
| 2513 | E |
| 2514 | E |
| 2515 | E |
| 2516 | E |
| 2517 | A |
| 3501 | A |
| 3502 | A |
| 3503 | A |
| 7501 | A |
| F501 | A |
| I502 | A3 |
| I503 | A3 |

## TV & Scaler Board: Flash / Control

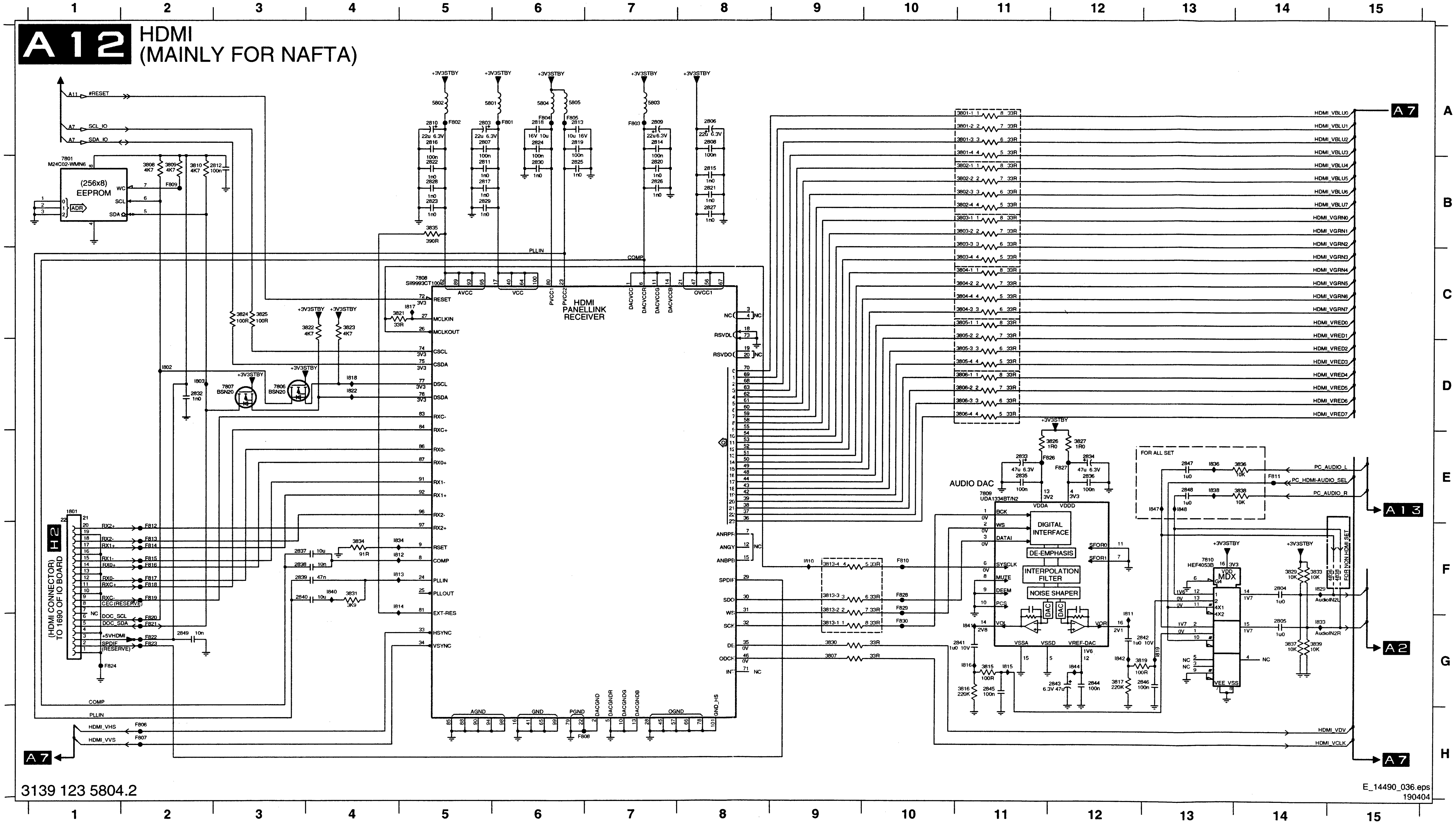

1
2
3
4
5
6
7
A
B
C
D
E
A 1 1
FLASH / CONTROL
A7
+3V3_IO
5530
F530
2533
100n
2530
10u 16V
7530
M29W040B-55K1
ROM
512Kx8
[FLASH]
OCMADDR0
OCMADDR1
OCMADDR2
OCMADDR3
OCMADDR4
OCMADDR5
OCMADDR6
OCMADDR7
OCMADDR8
OCMADDR9
OCMADDR10
OCMADDR11
OCMADDR12
OCMADDR13
OCMADDR14
OCMADDR15
OCMADDR16
OCMADDR17
OCMADDR18
A 0 512K-1
DQ
OCMDATA0
OCMDATA1
OCMDATA2
OCMDATA3
OCMDATA4
OCMDATA5
OCMDATA6
OCMDATA7
#OCM_RE
#OCM_WE
#ROM_CS
OE
WE
CE
3546-1 3546-2 3546-3 3546-4
3545-1 3545-2 3545-3 3545-4
3544-2 3544-1 3544-3 3544-4
3538-1 3538-2 3538-3 3538-4
3539-1 3539-2 3539-3 3539-4
10K
OCMADDR19
3547-1 3547-2 3547-3 3547-4
3548
3540-1 3540-3 3540-4 3540-2
3536 10K
F536
F537
F538
F539
F540
F541
1530
FOR TESTING USE
3541 RES
3542 RES
3543 RES
3550 0R
3553 0R
3552 0R
3551 0R
3549 0R
See Diversity Table Above For LCD Screen Size & Type Selection
+3V3STBY
3531 10K
2531 100n
3V3
7531
M24C32-WMN6T
(4Kx8)
EEPROM
NVM-WP
SCL_IO
SDA_IO
F531
F532
F533
WC
SCL
SDA
ADR
0V
2532 100n
1532 SKQR
F534
7532 NE56610-27
MR
VCC
SUB
GND
VOUT
F535
3534 1K0
3533 RES
3532 10K
#RESET
A7,A12
3139 123 5804.2
E_14490_035.eps
190404

| PANEL SIZE | Model & Source | 3550 | 3553 | 3552 | 3551 | 3549 |
|---|---|---|---|---|---|---|
| | | Resistor Item No | | | | |
| 17 inch | LC171W03 (LPL S-IPS) | --- | --- | --- | --- | --- |
| 17 inch | M170XW01 (AUO P-MVA) | --- | --- | --- | --- | YES |
| 23 inch | LC230W01 (LPL S-IPS) | --- | --- | --- | YES | |
| 23 inch | QD23WLO1 (QDI QSV) | --- | --- | --- | YES | YES |
| 26 inch | LC260W01 (LPL S-IPS) | --- | --- | YES | --- | --- |

| | |
|---|---|
| 1530 | C7 |
| 1532 | E4 |
| 2530 | A3 |
| 2531 | D2 |
| 2532 | D4 |
| 2533 | A3 |
| 3531 | D2 |
| 3532 | E4 |
| 3533 | E6 |
| 3534 | D6 |
| 3536 | B7 |
| 3538-1 | C5 |
| 3538-2 | C5 |
| 3538-3 | C5 |
| 3538-4 | C5 |
| 3539-1 | C5 |
| 3539-2 | C5 |
| 3539-3 | C5 |
| 3539-4 | C5 |
| 3540-1 | B6 |
| 3540-2 | B6 |
| 3540-3 | B6 |
| 3540-4 | B6 |
| 3541 | C6 |
| 3542 | C6 |
| 3543 | C7 |
| 3544-1 | B5 |
| 3544-2 | B5 |
| 3544-3 | B5 |
| 3544-4 | B5 |
| 3545-1 | B5 |
| 3545-2 | B5 |
| 3545-3 | B5 |
| 3545-4 | B5 |
| 3546-1 | B5 |
| 3546-2 | B5 |
| 3546-3 | B5 |
| 3546-4 | B5 |
| 3547-1 | A5 |
| 3547-2 | A6 |
| 3547-3 | A6 |
| 3547-4 | A6 |
| 3548 | A6 |
| 3549 | A6 |
| 3550 | A6 |
| 3551 | A6 |
| 3552 | A6 |
| 3553 | A6 |
| 5530 | A2 |
| 7530 | A2 |
| 7531 | D3 |
| 7532 | E5 |
| F530 | A2 |
| F531 | E2 |
| F532 | E2 |
| F533 | E2 |
| F534 | E4 |
| F535 | E5 |
| F536 | B7 |
| F537 | B6 |
| F538 | C6 |
| F539 | C6 |
| F540 | B7 |
| F541 | C7 |

# TV & Scaler Board: HDMI

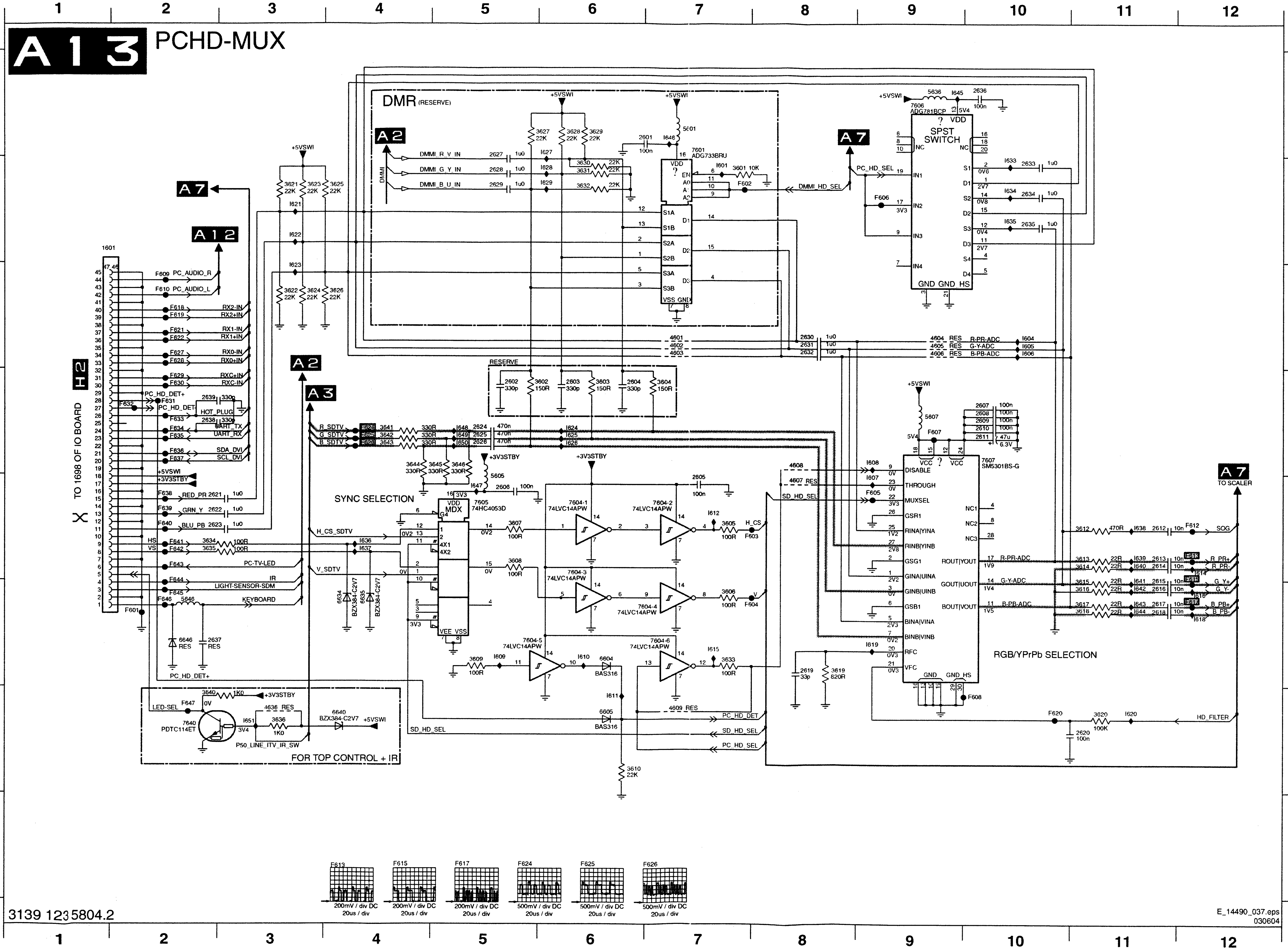
| Part | Location |
|---|---|
| 1801 | E1 |
| 2803 | A5 |
| 2804 | F14 |
| 2805 | G14 |
| 2806 | A8 |
| 2807 | A5 |
| 2808 | A8 |
| 2809 | A7 |
| 2810 | A5 |
| 2811 | B5 |
| 2812 | B3 |
| 2813 | A6 |
| 2814 | A7 |
| 2815 | B8 |
| 2816 | A5 |
| 2817 | B5 |
| 2818 | A6 |
| 2819 | A6 |
| 2820 | B7 |
| 2821 | B8 |
| 2822 | B5 |
| 2823 | B5 |
| 2824 | A6 |
| 2825 | B6 |
| 2826 | B7 |
| 2827 | B8 |
| 2828 | B5 |
| 2829 | B5 |
| 2830 | B6 |
| 2832 | D2 |
| 2833 | E11 |
| 2834 | E12 |
| 2835 | E11 |
| 2836 | E12 |
| 2837 | F3 |
| 2838 | F3 |
| 2839 | F3 |
| 2840 | F3 |
| 2841 | G11 |
| 2842 | G13 |
| 2843 | G12 |
| 2844 | G12 |
| 2845 | G11 |
| 2846 | G13 |
| 2847 | E13 |
| 2848 | E13 |
| 2849 | G2 |
| 3801-1 | A11 |
| 3801-2 | A11 |
| 3801-3 | A11 |
| 3801-4 | A11 |
| 3802-1 | B11 |
| 3802-2 | B11 |
| 3802-3 | B11 |
| 3802-4 | B11 |
| 3803-1 | B11 |
| 3803-2 | B11 |
| 3803-3 | B11 |
| 3803-4 | C11 |
| 3804-1 | C11 |
| 3804-2 | C11 |
| 3804-3 | C11 |
| 3804-4 | C11 |
| 3805-1 | C11 |
| 3805-2 | C11 |
| 3805-3 | D11 |
| 3805-4 | D11 |
| 3806-1 | D11 |
| 3806-2 | D11 |
| 3806-3 | D11 |
| 3806-4 | D11 |
| 3807 | G9 |
| 3808 | B2 |
| 3809 | B2 |
| 3810 | B2 |
| 3813-1 | G9 |
| 3813-2 | F9 |
| 3813-3 | F9 |
| 3813-4 | F9 |
| 3815 | G11 |
| 3816 | G11 |
| 3817 | G12 |
| 3819 | G12 |
| 3821 | C4 |
| 3822 | C4 |
| 3823 | C4 |
| 3824 | C3 |
| 3825 | C3 |
| 3826 | E12 |
| 3827 | E12 |
| 3829 | F14 |
| 3830 | G9 |
| 3831 | F4 |
| 3833 | F14 |
| 3834 | F4 |
| 3835 | B5 |
| 3836 | E14 |
| 3837 | G14 |
| 3838 | E14 |
| 3839 | G14 |
| 4836 | F15 |
| 4838 | F15 |
| 5801 | A5 |
| 5802 | A5 |
| 5803 | A7 |
| 5804 | A6 |
| 5805 | A6 |
| 7801 | B1 |
| 7806 | D3 |
| 7807 | D3 |
| 7808 | C5 |
| 7809 | E11 |
| 7810 | F13 |
| F801 | A6 |
| F802 | A5 |
| F803 | A7 |
| F804 | A6 |
| F805 | A6 |
| F806 | H2 |
| F807 | H2 |
| F808 | H6 |
| F809 | B2 |
| F810 | F10 |
| F811 | E14 |
| F812 | F2 |
| F813 | F2 |
| F814 | F2 |
| F815 | F2 |
| F816 | F2 |
| F817 | F2 |
| F818 | F2 |
| F819 | F2 |
| F820 | G2 |
| F821 | G2 |
| F822 | G2 |
| F823 | G2 |
| F824 | G1 |
| F826 | E11 |
| F827 | E12 |
| F828 | F10 |
| F829 | F10 |
| F830 | G10 |
| I802 | D2 |
| I803 | D2 |
| I810 | F9 |
| I811 | G12 |
| I812 | F4 |
| I813 | F4 |
| I814 | F4 |
| I815 | G11 |
| I816 | G11 |
| I817 | C5 |
| I818 | D4 |
| I819 | G13 |
| I822 | D4 |
| I829 | F14 |
| I833 | G14 |
| I834 | F4 |
| I836 | E13 |
| I838 | E13 |
| I840 | F4 |
| I841 | G11 |
| I842 | G12 |
| I844 | G12 |
| I847 | E13 |
| I848 | E13 |


A12
HDMI
(MAINLY FOR NAFTA)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H
A11 #RESET
A7 SCL_IO
A7 SDA_IO
7801 M24C02-WMN6
(256x8) EEPROM
ADR
WC
SCL
SDA
+3V3STBY
7808 SII9993CT100
HDMI PANELLINK RECEIVER
AVCC
VCC
PVCC1
PVCC2
DACVCC
OVCC1
RESET
MCLKIN
MCLKOUT
CSCL
CSDA
DSCL
DSDA
RXC-
RXC+
RX0-
RX0+
RX1-
RX1+
RX2-
RX2+
RSET
COMP
PLLIN
PLLOUT
EXT-RES
HSYNC
VSYNC
AGND
GND
PGND
OGND
RSVDL
RSVDO
ANRPR
ANGY
ANBPB
SPDIF
SDO
WS
SCK
DE
ODCK
INT
NC
7806 BSN20
7807 BSN20
1801
H2
(HDMI CONNECTOR) TO 1690 OF IO BOARD
CEC(RESERVE)
DOC_SCL
DOC_SDA
+5VHDMI
SPDIF (RESERVE)
COMP
PLLIN
HDMI_VHS
HDMI_VVS
A7
HDMI_VBLU0
HDMI_VBLU1
HDMI_VBLU2
HDMI_VBLU3
HDMI_VBLU4
HDMI_VBLU5
HDMI_VBLU6
HDMI_VBLU7
HDMI_VGRN0
HDMI_VGRN1
HDMI_VGRN2
HDMI_VGRN3
HDMI_VGRN4
HDMI_VGRN5
HDMI_VGRN6
HDMI_VGRN7
HDMI_VRED0
HDMI_VRED1
HDMI_VRED2
HDMI_VRED3
HDMI_VRED4
HDMI_VRED5
HDMI_VRED6
HDMI_VRED7
AUDIO DAC
7809 UDA1334BT/N2
DIGITAL INTERFACE
DE-EMPHASIS
INTERPOLATION FILTER
NOISE SHAPER
DAC
BCK
WS
DATAI
SYSCLK
MUTE
DEEM
PCS
VOL
VOR
VDDA
VDDD
VSSA
VSSD
VREF-DAC
SFOR0
SFOR1
FOR ALL SET
PC_AUDIO_L
PC_HDMI-AUDIO_SEL
PC_AUDIO_R
A13
7810 HEF4053B
MDX
VEE VSS
FOR NON HDMI SET
AudioIN2L
AudioIN2R
A2
HDMI_VDV
HDMI_VCLK
A7

3139 123 5804.2

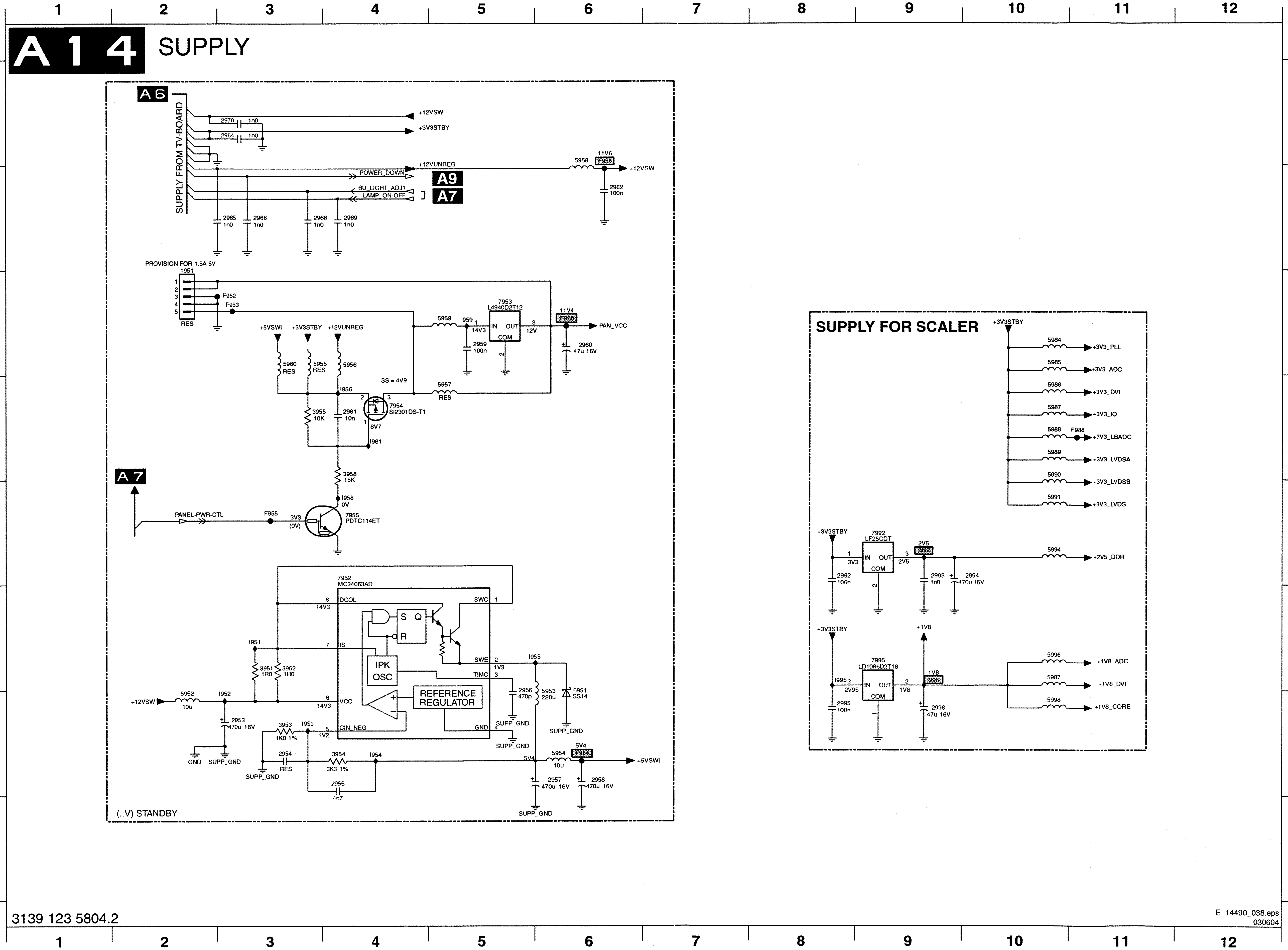
E_14490_036.eps
190404

## TV & Scaler Board: PCHD-MUX


A13 PCHD-MUX
DMR (RESERVE)
A2
A7
A12
A3
TO 1698 OF IO BOARD
1601
H2
SYNC SELECTION
7605 74HC4053D
7604-1 74LVC14APW
7604-2 74LVC14APW
7604-3 74LVC14APW
7604-4 74LVC14APW
7604-5 74LVC14APW
7604-6 74LVC14APW
7601 ADG733BRU
7606 ADG781BCP
SPST SWITCH
7607 SM5301BS-G
RGB/YPrPb SELECTION
A7 TO SCALER
RESERVE
FOR TOP CONTROL + IR
7640 PDTC114ET
PC_AUDIO_R
PC_AUDIO_L
PC_HD_DET+
HOT_PLUG
UART_TX
UART_RX
SDA_DVI
SCL_DVI
RED_PR
GRN_Y
BLU_PB
PC-TV-LED
IR
LIGHT-SENSOR-SDM
KEYBOARD
H_CS_SDTV
V_SDTV
R_SDTV
G_SDTV
B_SDTV
DMMI_R_V_IN
DMMI_G_Y_IN
DMMI_B_U_IN
DMMI_HD_SEL
PC_HD_SEL
SD_HD_SEL
HD_FILTER
SOG
R_PR+
G_Y+
B_PB+
F613
F615
F617
F624
F625
F626
200mV / div DC 20us / div
500mV / div DC 20us / div
3139 123 5804.2
E_14490_037.eps
030604

| | |
|---|---|
| 1601 | B1 |
| 2601 | A7 |
| 2602 | D5 |
| 2603 | D6 |
| 2604 | D6 |
| 2605 | E7 |
| 2606 | E5 |
| 2607 | D10 |
| 2608 | D10 |
| 2609 | D10 |
| 2610 | D10 |
| 2611 | D10 |
| 2612 | E11 |
| 2613 | E11 |
| 2614 | E11 |
| 2615 | F11 |
| 2616 | F11 |
| 2617 | F11 |
| 2618 | F11 |
| 2619 | F8 |
| 2620 | G11 |
| 2621 | E2 |
| 2622 | E2 |
| 2623 | E2 |
| 2624 | D5 |
| 2625 | D5 |
| 2626 | D5 |
| 2627 | A5 |
| 2628 | B5 |
| 2629 | B5 |
| 2630 | C8 |
| 2631 | C8 |
| 2632 | C8 |
| 2633 | B10 |
| 2634 | B10 |
| 2635 | B10 |
| 2636 | A10 |
| 2637 | F2 |
| 2638 | D2 |
| 2639 | D2 |
| 3601 | B7 |
| 3602 | D6 |
| 3603 | D6 |
| 3604 | D7 |
| 3605 | E7 |
| 3606 | F7 |
| 3607 | E5 |
| 3608 | E5 |
| 3609 | F5 |
| 3610 | G6 |
| 3612 | E11 |
| 3613 | E11 |
| 3614 | E11 |
| 3615 | F11 |
| 3616 | F11 |
| 3617 | F11 |
| 3618 | F11 |
| 3619 | F8 |
| 3620 | G11 |
| 3621 | B3 |
| 3622 | C3 |
| 3623 | B3 |
| 3624 | C3 |
| 3625 | B4 |
| 3626 | C4 |
| 3627 | A6 |
| 3628 | A6 |
| 3629 | A6 |
| 3630 | B6 |
| 3631 | B6 |
| 3632 | B6 |
| 3633 | F7 |
| 3634 | E2 |
| 3635 | E2 |
| 3636 | G3 |
| 3640 | G2 |
| 3641 | D4 |
| 3642 | D4 |
| 3643 | D4 |
| 3644 | D4 |
| 3645 | D5 |
| 3646 | D5 |
| 4601 | C7 |
| 4602 | C7 |
| 4603 | C7 |
| 4604 | C9 |
| 4605 | C9 |
| 4606 | C9 |
| 4607 | E8 |
| 4608 | D8 |
| 4609 | G7 |
| 4636 | G3 |
| 5601 | A7 |
| 5605 | E5 |
| 5607 | D9 |
| 5636 | A9 |
| 5646 | F2 |
| 6604 | F6 |
| 6605 | G6 |
| 6634 | F4 |
| 6635 | F4 |
| 6640 | G4 |
| 6646 | F2 |
| 7601 | A7 |
| 7604-1 | E6 |
| 7604-2 | E7 |
| 7604-3 | E6 |
| 7604-4 | F7 |
| 7604-5 | F6 |
| 7604-6 | F7 |
| 7605 | E5 |
| 7606 | A9 |
| 7607 | D10 |
| 7640 | G2 |
| F601 | F2 |
| F602 | B7 |
| F603 | E8 |
| F604 | F8 |
| F605 | E9 |
| F606 | B9 |
| F607 | D9 |
| F608 | G10 |
| F609 | C2 |
| F610 | C2 |
| F612 | E12 |
| F613 | E12 |
| F615 | E12 |
| F617 | F12 |
| F618 | C2 |
| F619 | C2 |
| F620 | G10 |
| F621 | C2 |
| F622 | C2 |
| F624 | D4 |
| F625 | D4 |
| F626 | D4 |
| F627 | C2 |
| F628 | C2 |
| F629 | D2 |
| F630 | D2 |
| F631 | D2 |
| F632 | D2 |
| F633 | D2 |
| F634 | D2 |
| F635 | D2 |
| F636 | D2 |
| F637 | D2 |
| F638 | E2 |
| F639 | E2 |
| F640 | E2 |
| F641 | E2 |
| F642 | E2 |
| F643 | E2 |
| F644 | F2 |
| F645 | F2 |
| F646 | F2 |
| F647 | G2 |
| I601 | B7 |
| I604 | C10 |
| I605 | C10 |
| I606 | C10 |
| I607 | E9 |
| I608 | D9 |
| I609 | F5 |
| I610 | F6 |
| I611 | G6 |
| I612 | E7 |
| I614 | E12 |
| I615 | F7 |
| I616 | F12 |
| I618 | F12 |
| I619 | F9 |
| I620 | G11 |
| I621 | B3 |
| I622 | B3 |
| I623 | C3 |
| I624 | D6 |
| I625 | D6 |
| I626 | D6 |
| I627 | A6 |
| I628 | B6 |
| I629 | B6 |
| I633 | B10 |
| I634 | B10 |
| I635 | B10 |
| I636 | E4 |
| I637 | E4 |
| I638 | E11 |
| I639 | E11 |
| I640 | E11 |
| I641 | E11 |
| I642 | F11 |
| I643 | F11 |
| I644 | F11 |
| I645 | A9 |
| I646 | A7 |
| I647 | E5 |
| I648 | D5 |
| I649 | D5 |
| I650 | D5 |
| I651 | G3 |

## TV & Scaler Board: Supply


A14
SUPPLY
A6
SUPPLY FROM TV-BOARD
2970 1n0
2964 1n0
+12VSW
+3V3STBY
+12VUNREG
POWER_DOWN
BU_LIGHT_ADJ1
LAMP_ON-OFF
A9
A7
2965 1n0
2966 1n0
2968 1n0
2969 1n0
5958
11V6
F958
+12VSW
2962 100n
PROVISION FOR 1.5A 5V
1951
RES
F952
F953
7953 L4940D2T12
IN OUT COM
5959
I959
14V3
12V
2959 100n
11V4
F960
PAN_VCC
2960 47u 16V
+5VSWI
+3V3STBY
+12VUNREG
5960 RES
5955 RES
5956
SS = 4V9
5957 RES
I956
3955 10K
2961 10n
7954 SI2301DS-T1
8V7
I961
A7
3958 15K
I958 0V
PANEL-PWR-CTL
F955
3V3 (0V)
7955 PDTC114ET
7952 MC34063AD
DCOL
14V3
SWC
S Q
R
IS
IPK OSC
SWE
TIMC
1V3
REFERENCE REGULATOR
VCC
CIN_NEG
GND
I951
3951 1R0
3952 1R0
+12VSW
5952 10u
I952
2953 470u 16V
GND SUPP_GND
3953 1K0 1%
I953
1V2
2954 RES
SUPP_GND
3954 3K3 1%
I954
2955 4n7
I955
2956 470p
5953 220u
6951 SS14
SUPP_GND
5V4
5954 10u
F954
+5VSWI
2957 470u 16V
2958 470u 16V
(..V) STANDBY
SUPPLY FOR SCALER
+3V3STBY
5984 +3V3_PLL
5985 +3V3_ADC
5986 +3V3_DVI
5987 +3V3_IO
5988 F988 +3V3_LBADC
5989 +3V3_LVDSA
5990 +3V3_LVDSB
5991 +3V3_LVDS
+3V3STBY
7992 LF25CDT
IN OUT COM
3V3
2V5
I992
2992 100n
2993 1n0
2994 470u 16V
5994 +2V5_DDR
+3V3STBY
+1V8
7995 LD1086D2T18
I995
2V95
1V8
I996
1V6
2995 100n
2996 47u 16V
5996 +1V8_ADC
5997 +1V8_DVI
5998 +1V8_CORE
3139 123 5804.2
E_14490_038.eps
030604
1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G H

| | |
|---|---|
| 1951 | C2 |
| 2953 | G3 |
| 2954 | G3 |
| 2955 | G4 |
| 2956 | F5 |
| 2957 | G6 |
| 2958 | G6 |
| 2959 | C5 |
| 2960 | C6 |
| 2961 | D4 |
| 2962 | B6 |
| 2964 | A3 |
| 2965 | B3 |
| 2966 | B3 |
| 2968 | B3 |
| 2969 | B4 |
| 2970 | A3 |
| 2992 | E8 |
| 2993 | E9 |
| 2994 | E10 |
| 2995 | G8 |
| 2996 | G9 |
| 3951 | F3 |
| 3952 | F3 |
| 3953 | G3 |
| 3954 | G4 |
| 3955 | D3 |
| 3958 | D4 |
| 5952 | G2 |
| 5953 | G6 |
| 5954 | G6 |
| 5955 | C3 |
| 5956 | C4 |
| 5957 | D5 |
| 5958 | A6 |
| 5959 | C5 |
| 5960 | C3 |
| 5984 | C10 |
| 5985 | C10 |
| 5986 | D10 |
| 5987 | D10 |
| 5988 | D10 |
| 5989 | D10 |
| 5990 | D10 |
| 5991 | E10 |
| 5994 | E10 |
| 5996 | F10 |
| 5997 | F10 |
| 5998 | G10 |
| 6951 | G6 |
| 7952 | E4 |
| 7953 | C5 |
| 7954 | D4 |
| 7955 | E4 |
| 7992 | E9 |
| 7995 | F9 |
| F952 | C3 |
| F953 | C3 |
| F954 | G6 |
| F955 | E3 |
| F958 | A6 |
| F960 | C6 |
| F988 | D11 |
| I951 | F3 |
| I952 | G3 |
| I953 | G3 |
| I954 | G4 |
| I955 | F5 |
| I956 | D4 |
| I958 | E4 |
| I959 | C5 |
| I961 | D4 |
| I992 | E9 |
| I995 | F8 |
| I996 | F9 |

# Layout TV & Scaler Board: (Overview Top Side)

| | |
|---|---|
| 1002 | C5 |
| 1004 | C4 |
| 1005 | D4 |
| 1009 | D3 |
| 1302 | D2 |
| 1303 | D1 |
| 1304 | D2 |
| 1305 | D1 |
| 1328 | C2 |
| 1329 | B2 |
| 1330 | C2 |
| 1406 | A5 |
| 1407 | A8 |
| 1408 | A6 |
| 1409 | A8 |
| 1530 | A6 |
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| 1601 | D7 |
| 1701 | B1 |
| 1704 | A2 |
| 1801 | D8 |
| 1910 | A1 |
| 1951 | A6 |
| 2001 | B3 |
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| 2004 | B2 |
| 2005 | B3 |
| 2010 | B3 |
| 2011 | B3 |
| 2013 | C3 |
| 2014 | C3 |
| 2015 | C3 |
| 2016 | C4 |
| 2017 | C4 |
| 2018 | C4 |
| 2019 | A4 |
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| 2021 | A4 |
| 2022 | A4 |
| 2023 | C4 |
| 2025 | C4 |
| 2026 | C4 |
| 2028 | A4 |
| 2029 | C4 |
| 2030 | C4 |
| 2031 | B4 |
| 2032 | B4 |
| 2033 | B4 |
| 2034 | A4 |
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| 2042 | A4 |
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| 2053 | D4 |
| 2055 | B4 |
| 2060 | B3 |
| 2062 | A4 |
| 2065 | D3 |
| 2066 | D3 |
| 2068 | B2 |
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| 2314 | C2 |
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| 2515 | B8 |
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| 2517 | B8 |
| 2531 | B6 |
| 2532 | B5 |
| 2533 | A5 |
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| 2636 | C7 |
| 2637 | D6 |
| 2638 | D5 |
| 2639 | C6 |
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| 2703 | A1 |
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| 2744 | A3 |
| 2745 | B2 |
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| 2836 | D7 |
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| 2844 | C7 |
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| 2848 | D7 |
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| 2937 | A1 |
| 2938 | A1 |
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| 3012 | C5 |
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| 3073 | B3 |
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| 3708 | A2 |
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| 3717 | A1 |
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| 4313 | C2 |
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| 4329 | C1 |
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| 4586 | A3 |
| 4587 | A3 |
| 4588 | A3 |
| 4589 | A3 |
| 4590 | A3 |
| 4591 | A3 |
| 4592 | A3 |
| 4593 | A3 |
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| 4604 | D6 |
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| 4606 | D6 |
| 4607 | D6 |
| 4608 | D6 |
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| 4703 | A2 |
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| 4707 | D3 |
| 4708 | B3 |
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| 4838 | D7 |
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| 5002 | B2 |
| 5007 | B4 |
| 5008 | B4 |
| 5010 | B5 |
| 5060 | B2 |
| 5070 | B3 |
| 5071 | B3 |
| 5304 | D2 |
| 5309 | C1 |
| 5321 | C1 |
| 5324 | C1 |
| 5339 | C3 |
| 5340 | C3 |
| 5360 | B4 |
| 5372 | B4 |
| 5580 | A3 |
| 5601 | D6 |
| 5607 | C5 |
| 5646 | D6 |
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| 5920 | A4 |
| 5932 | A3 |
| 5955 | A6 |
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| 5986 | C6 |
| 5987 | C6 |
| 5988 | C6 |
| 5989 | B7 |
| 5990 | B6 |
| 5991 | B6 |
| 5994 | A8 |
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| 5998 | B6 |
| 6001 | B3 |
| 6002 | B5 |
| 6020 | A4 |
| 6021 | A4 |
| 6073 | A3 |
| 6074 | A3 |
| 6075 | A3 |
| 6076 | B2 |
| 6310 | D1 |
| 6311 | D1 |
| 6323 | C1 |
| 6324 | C1 |
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| 6329 | D2 |
| 6330 | C1 |
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| 6910 | A4 |
| 6911 | A4 |
| 7005 | A3 |
| 7011 | B3 |
| 7015 | A4 |
| 7016 | A4 |
| 7017 | A4 |
| 7018 | A4 |
| 7019 | A4 |
| 7068 | B4 |
| 7070 | B3 |
| 7075 | A3 |
| 7099 | A3 |
| 7316 | D2 |
| 7320 | C1 |
| 7325 | C1 |
| 7360 | C4 |
| 7415 | A8 |
| 7449 | C7 |
| 7531 | B6 |
| 7532 | C5 |
| 7580 | A3 |
| 7581 | A3 |
| 7582 | A3 |
| 7583 | A3 |
| 7584 | A3 |
| 7585 | A3 |
| 7601 | D6 |
| 7606 | D7 |
| 7607 | D6 |
| 7703 | A2 |
| 7707 | B2 |
| 7740 | A2 |
| 7801 | C8 |
| 7806 | D8 |
| 7807 | D8 |
| 7809 | C7 |
| 7810 | D8 |
| 7910 | A4 |
| 7920 | A4 |
| 7953 | A7 |
| 7954 | A6 |
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| 7992 | A8 |
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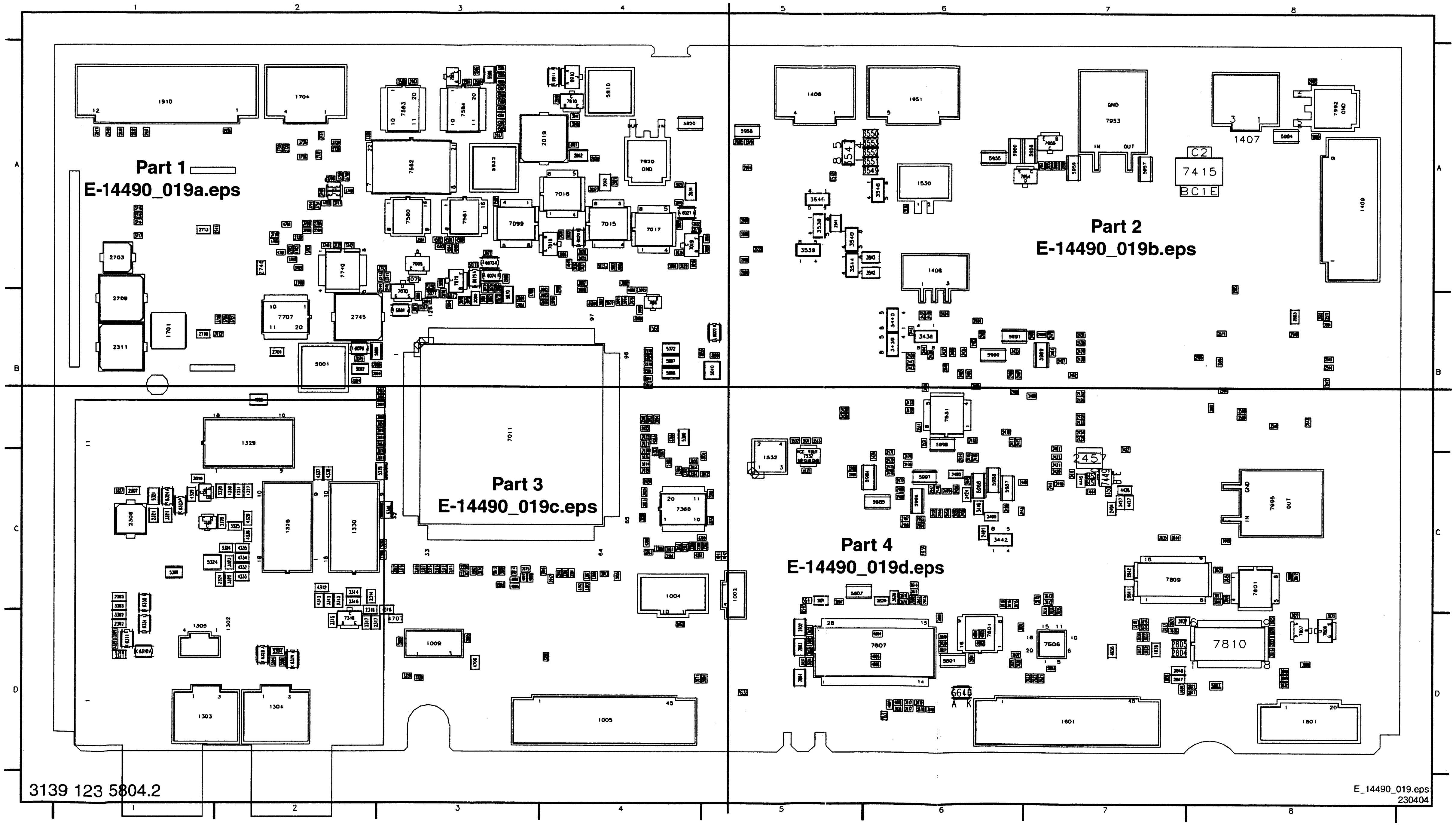
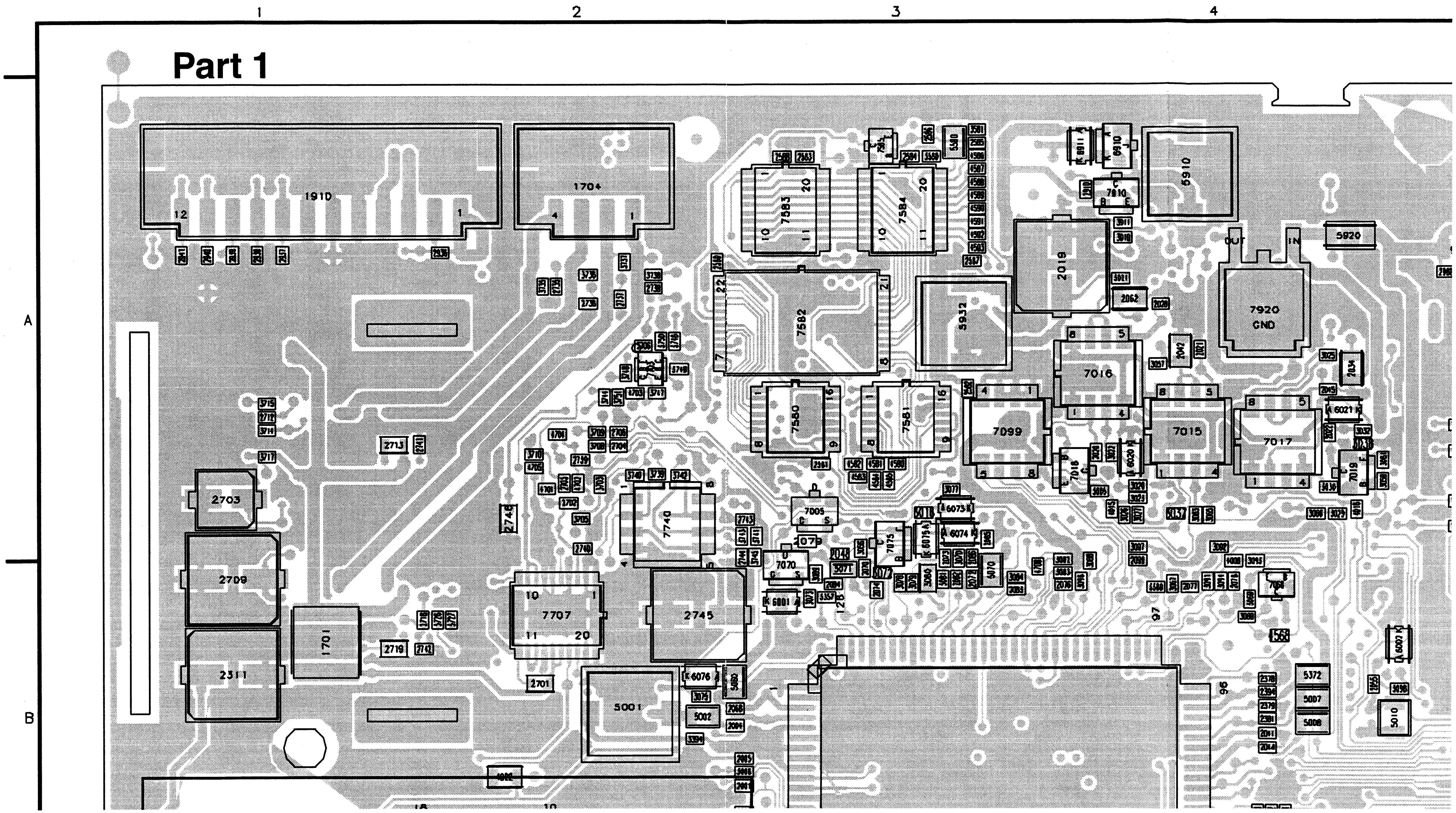


## Layout TV & Scaler Board: (Part 1 Top Side)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4
A
B
Part 1
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7583
7584
7582
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2019
5910
5920
7920
GND
OUT
IN
7016
7099
7015
7017
7580
7581
2703
2709
2311
1701
7707
2745
7740
5001
5002
7005
7070
7075
6074
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6001
6021
5372
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2701
2748

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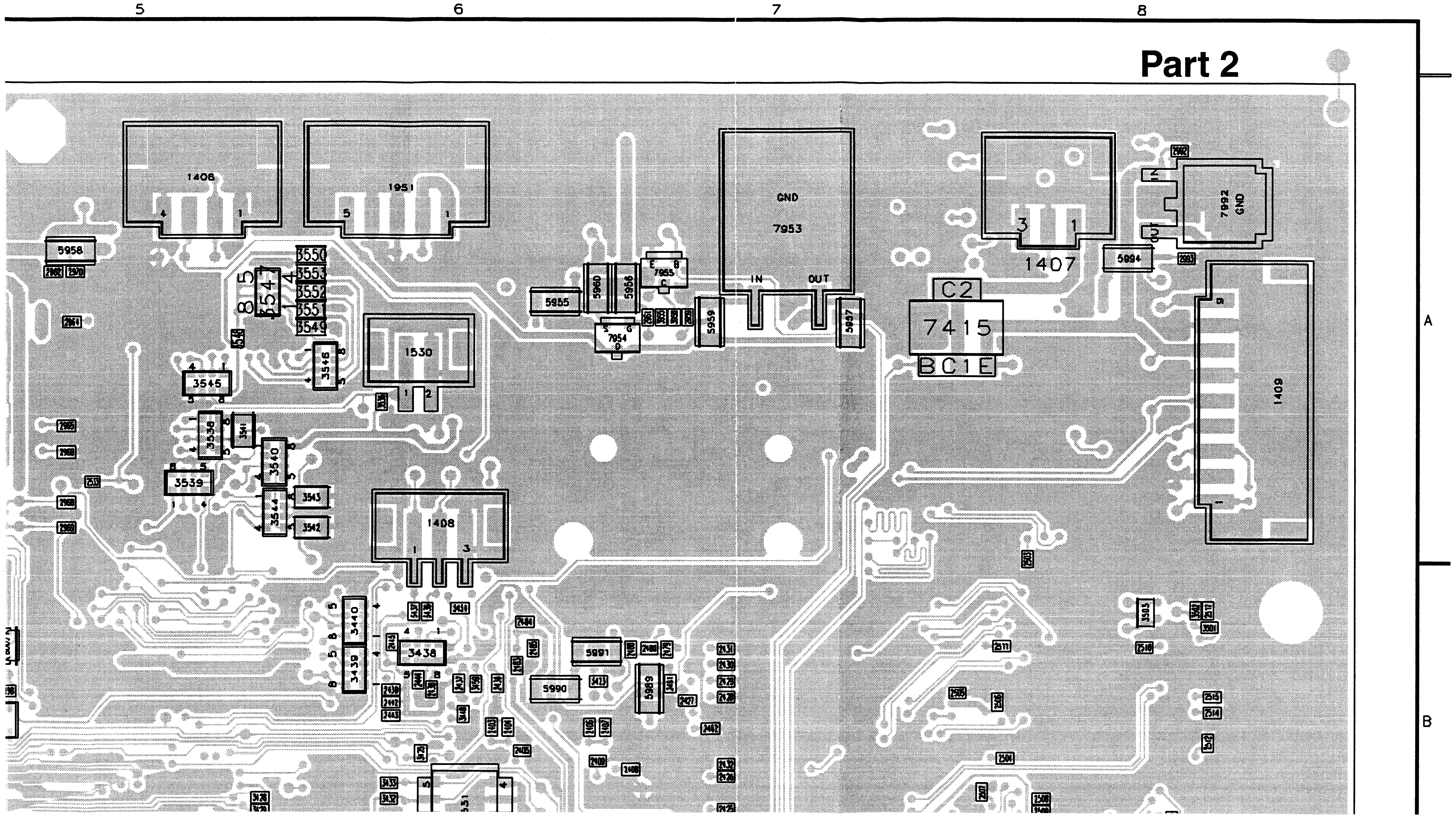
## Layout TV & Scaler Board: (Part 2 Top Side)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6
7
8
A
B
Part 2
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GND
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IN
OUT
1407
7992
GND
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3553
3552
3551
3549
3547
3545
3546
1530
5955
5960
5956
7955
7954
5959
5957
C2
7415
BC1E
5994
1409
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3540
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3544
3543
3542
1408
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3438
5991
5990
5989

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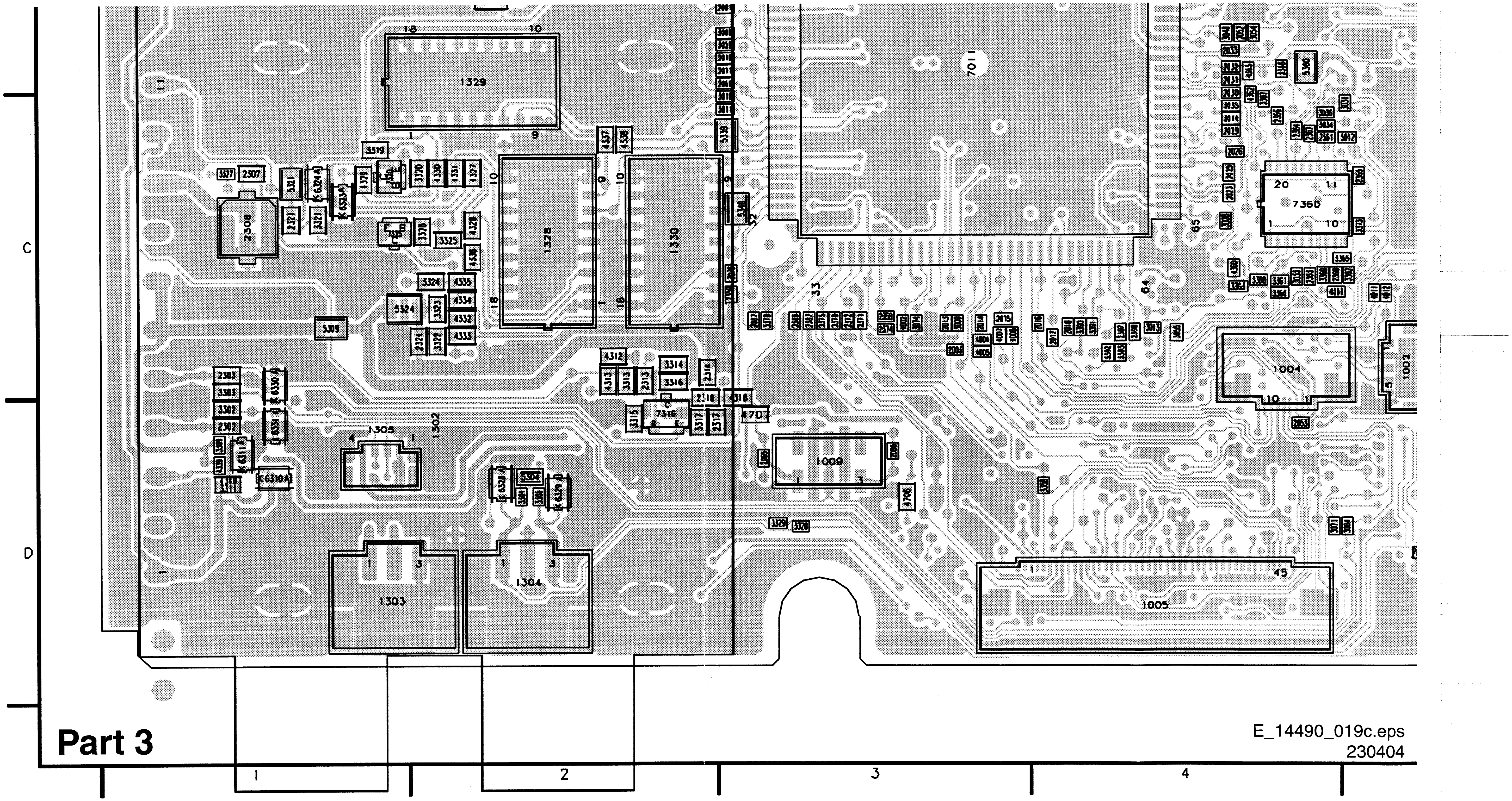
## Layout TV & Scaler Board: (Part 3 Top Side)


C
D
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3
4
Part 3
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1330
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1004
1002
1005
1009
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1304
1305
1302
2308
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7318
4707
4706
5309
6310A
6311
6330
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6328A
6329
6324A
6325A

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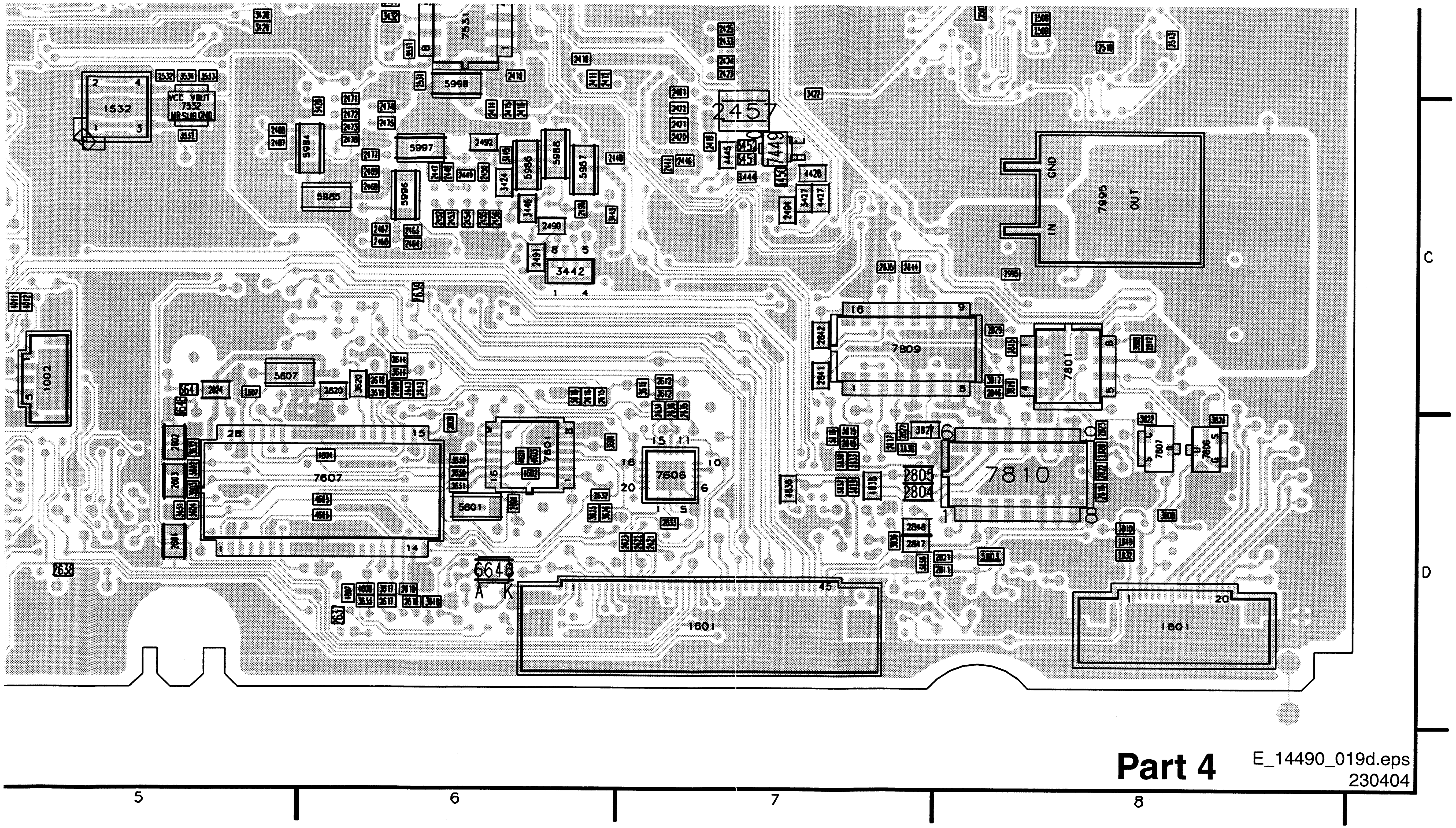
**Layout TV & Scaler Board: (Part 4 Top Side)**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VCC VOUT
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5988
5987
3424
3446
2490
3442
2457
7449
7995
GND
IN
OUT
1002
5607
2620
7607
7601
7606
5601
6646
A K
1601
7809
7801
7810
2805
2804
7807
7806
1801
C
D
5
6
7
8

**Part 4**

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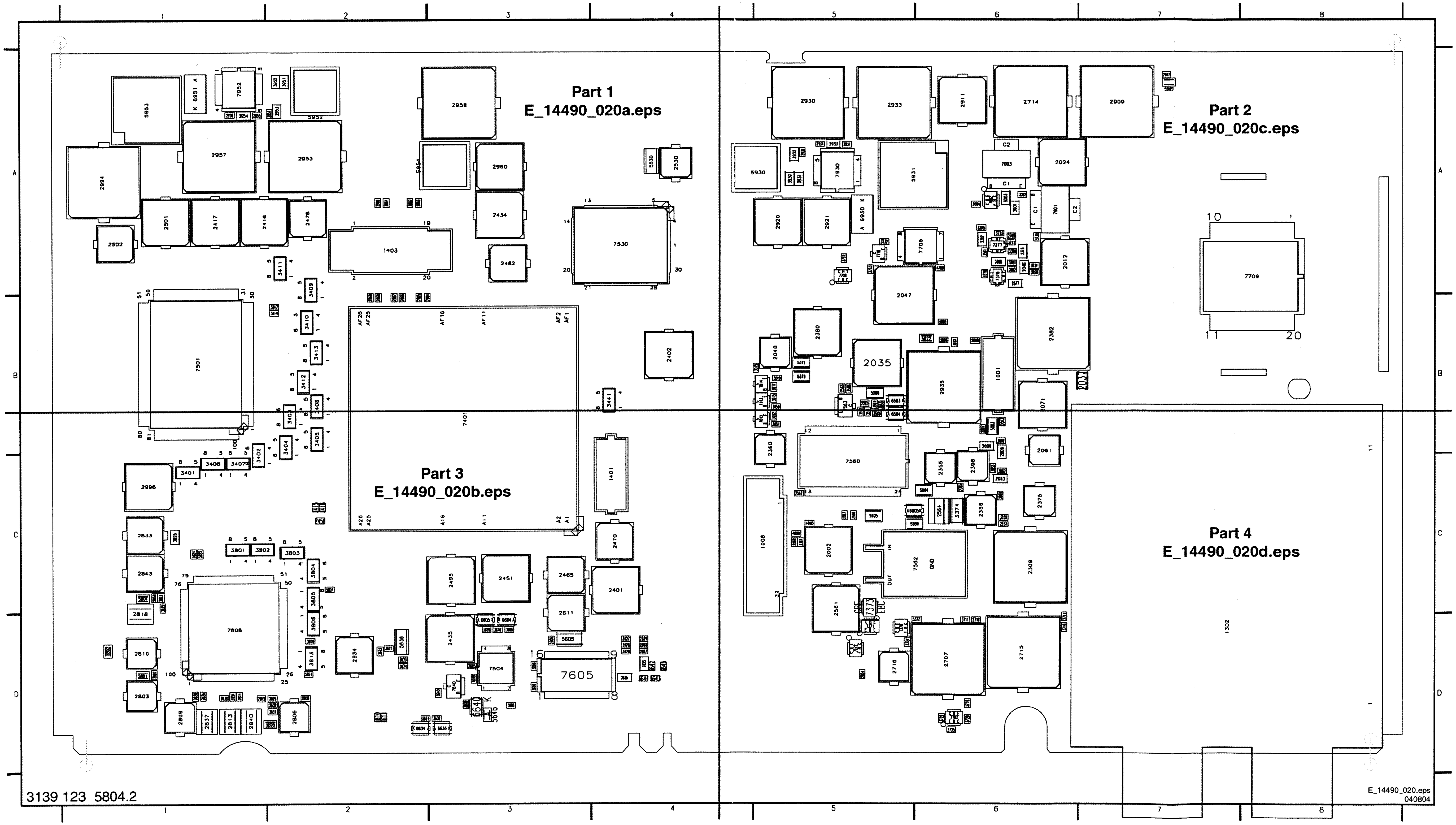
## Layout TV & Scaler Board: (Overview Bottom Side)

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1001 | B6 | 2027 | C5 | 2309 | C6 | 2392 | A6 | 2465 | C3 | 2563 | B5 | 2708 | A6 | 2810 | D1 | 2834 | D2 | 2865 | B2 | 2932 | A5 | 2960 | A3 | 3019 | B5 | 3087 | B6 |
| 1008 | C5 | 2035 | B5 | 2355 | C6 | 2395 | C6 | 2470 | C4 | 2564 | C6 | 2710 | D6 | 2813 | D1 | 2837 | D1 | 2866 | B2 | 2933 | A5 | 2994 | A1 | 3024 | A6 | 3359 | C6 |
| 1401 | C4 | 2040 | B5 | 2356 | C6 | 2396 | C6 | 2478 | A2 | 2605 | D3 | 2711 | D6 | 2814 | D1 | 2838 | D1 | 2867 | B2 | 2934 | A5 | 2996 | C1 | 3049 | B5 | 3364 | C5 |
| 1403 | A2 | 2043 | B6 | 2357 | C6 | 2401 | C4 | 2482 | A3 | 2606 | D3 | 2714 | A6 | 2818 | D1 | 2839 | D2 | 2868 | B2 | 2935 | B6 | 3000 | A6 | 3050 | B5 | 3371 | D5 |
| 2002 | C5 | 2046 | A6 | 2360 | B5 | 2402 | B4 | 2495 | C3 | 2611 | D3 | 2715 | D6 | 2819 | D1 | 2840 | D1 | 2869 | B2 | 2942 | A7 | 3001 | A6 | 3051 | B5 | 3372 | D6 |
| 2006 | B6 | 2047 | B5 | 2375 | C6 | 2417 | A1 | 2501 | A1 | 2625 | D4 | 2716 | D5 | 2820 | D1 | 2843 | C1 | 2909 | A7 | 2953 | A2 | 3002 | A6 | 3052 | B5 | 3374 | C6 |
| 2007 | B6 | 2054 | D5 | 2376 | A6 | 2418 | A1 | 2502 | A1 | 2626 | D4 | 2803 | D1 | 2824 | C1 | 2860 | A2 | 2911 | A6 | 2954 | A2 | 3003 | A6 | 3053 | C6 | 3378 | A6 |
| 2008 | B6 | 2061 | B6 | 2377 | A6 | 2434 | A3 | 2530 | A4 | 2627 | D4 | 2806 | D2 | 2825 | D2 | 2861 | A2 | 2920 | A5 | 2955 | A1 | 3004 | A6 | 3060 | C6 | 3380 | A6 |
| 2009 | B6 | 2063 | C6 | 2380 | B5 | 2435 | D3 | 2560 | C5 | 2628 | D4 | 2807 | D1 | 2826 | D1 | 2862 | A2 | 2921 | A5 | 2956 | A1 | 3007 | B6 | 3062 | C6 | 3381 | A6 |
| 2012 | A6 | 2071 | B6 | 2382 | B6 | 2451 | C3 | 2561 | C5 | 2629 | D4 | 2808 | D2 | 2830 | C1 | 2863 | A2 | 2930 | A5 | 2957 | A1 | 3015 | B5 | 3085 | B6 | 3382 | A6 |
| 2024 | A6 | 2089 | C5 | 2386 | A6 | 2458 | C2 | 2562 | C5 | 2707 | D6 | 2809 | D1 | 2833 | C1 | 2864 | B2 | 2931 | A5 | 2958 | A3 | 3017 | B5 | 3086 | B6 | 3383 | A6 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3386 | A6 | 3411 | A2 | 3563 | B5 | 3622 | D2 | 3643 | D4 | 3730 | A6 | 3813 | D2 | 3932 | A5 | 5003 | B6 | 5801 | D1 | 6563 | B5 | 7003 | A6 | 7530 | A4 | 7710 | A5 |
| 3401 | C1 | 3412 | B2 | 3564 | B5 | 3623 | D2 | 3644 | D4 | 3731 | A5 | 3821 | D2 | 3933 | A5 | 5004 | C6 | 5802 | D1 | 6564 | B5 | 7012 | B5 | 7560 | C5 | 7808 | D1 |
| 3402 | C1 | 3413 | B2 | 3565 | B5 | 3624 | D2 | 3645 | D4 | 3732 | A5 | 3824 | C1 | 3951 | A2 | 5005 | C5 | 5804 | C1 | 6604 | D3 | 7013 | B5 | 7562 | C6 | 7930 | A5 |
| 3403 | B2 | 3414 | B2 | 3566 | B5 | 3627 | D4 | 3711 | D6 | 3733 | A5 | 3825 | C1 | 3952 | A2 | 5006 | B5 | 5805 | D2 | 6605 | D3 | 7014 | B5 | 7563 | B5 | 7952 | A1 |
| 3404 | B2 | 3415 | C2 | 3605 | D3 | 3628 | D4 | 3712 | A6 | 3801 | C1 | 3826 | C1 | 3953 | A2 | 5072 | B6 | 5909 | A7 | 6634 | D2 | 7370 | D5 | 7604 | D3 | | |
| 3405 | B2 | 3416 | C2 | 3606 | D3 | 3629 | D4 | 3713 | A6 | 3802 | C1 | 3830 | D2 | 3954 | A1 | 5370 | B5 | 5930 | A5 | 6635 | D3 | 7371 | D5 | 7605 | D3 | | |
| 3406 | B2 | 3441 | B4 | 3607 | D3 | 3634 | D2 | 3718 | D6 | 3803 | C2 | 3831 | D2 | 4009 | C5 | 5371 | B5 | 5931 | A5 | 6640 | D3 | 7372 | D5 | 7640 | D3 | | |
| 3407 | C1 | 3447 | B2 | 3608 | D3 | 3635 | D3 | 3719 | D6 | 3804 | C2 | 3834 | D1 | 4010 | C5 | 5530 | A4 | 5952 | A2 | 6930 | A5 | 7376 | A6 | 7702 | D6 | | |
| 3408 | C1 | 3560 | B5 | 3609 | D3 | 3636 | D3 | 3720 | D6 | 3805 | C2 | 3835 | C1 | 4609 | D3 | 5560 | C5 | 5953 | A1 | 6951 | A1 | 7377 | A6 | 7706 | A6 | | |
| 3409 | A2 | 3561 | B5 | 3610 | D3 | 3640 | D3 | 3722 | D6 | 3806 | D2 | 3930 | A5 | 4636 | D3 | 5605 | D3 | 5954 | A2 | 7001 | A6 | 7401 | B3 | 7708 | A5 | | |
| 3410 | B2 | 3562 | B5 | 3621 | D2 | 3642 | D4 | 3725 | D6 | 3807 | C2 | 3931 | A5 | 4709 | A6 | 5636 | D2 | 6005 | C5 | 7002 | A6 | 7501 | B1 | 7709 | A8 | | |


1
2
3
4
5
6
7
8
A
B
C
D
Part 1
E_14490_020a.eps
Part 2
E_14490_020c.eps
Part 3
E_14490_020b.eps
Part 4
E_14490_020d.eps
5953
6951
7952
5952
2957
2953
2994
2958
5954
2960
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2530
7530
2501
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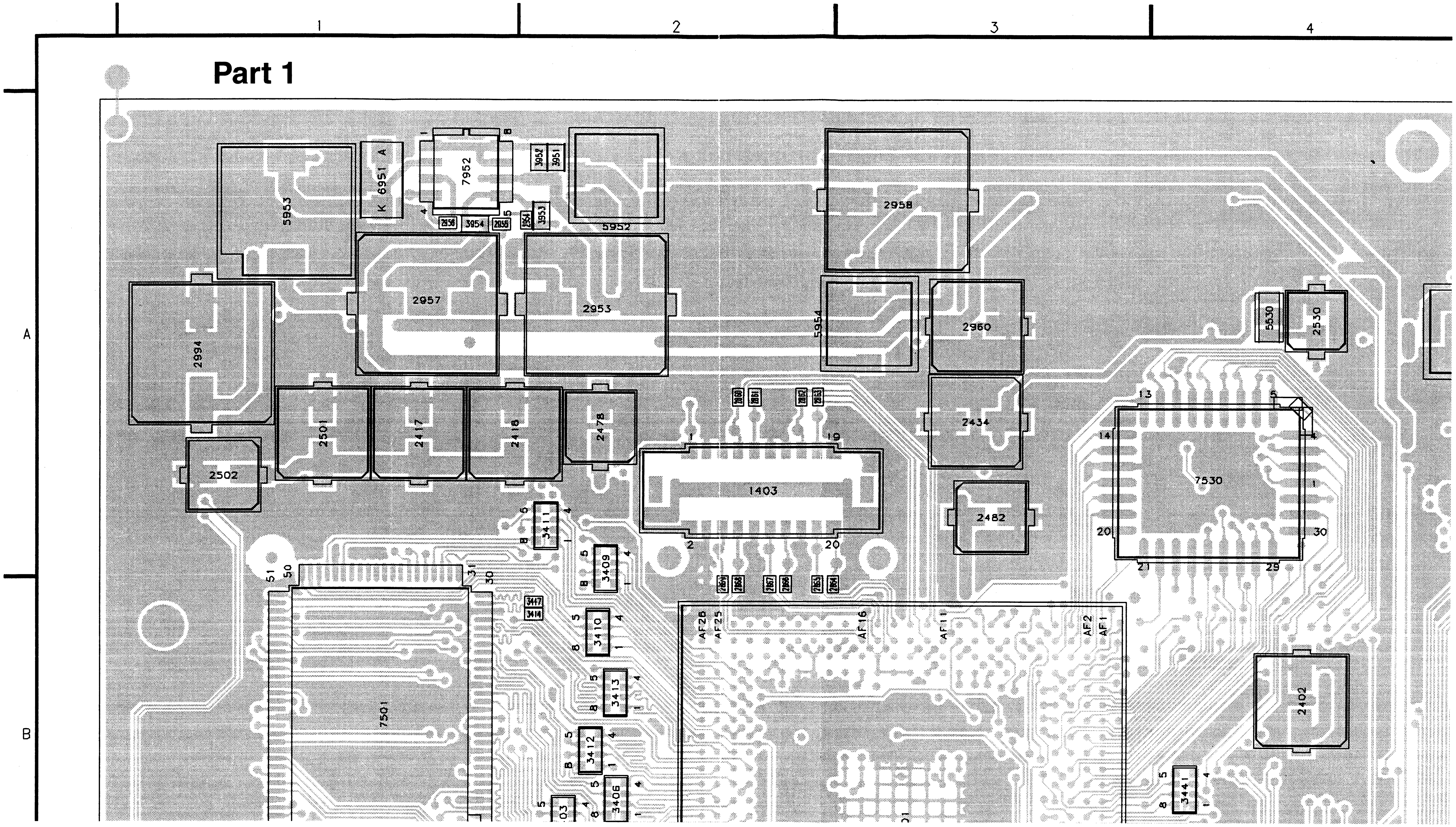
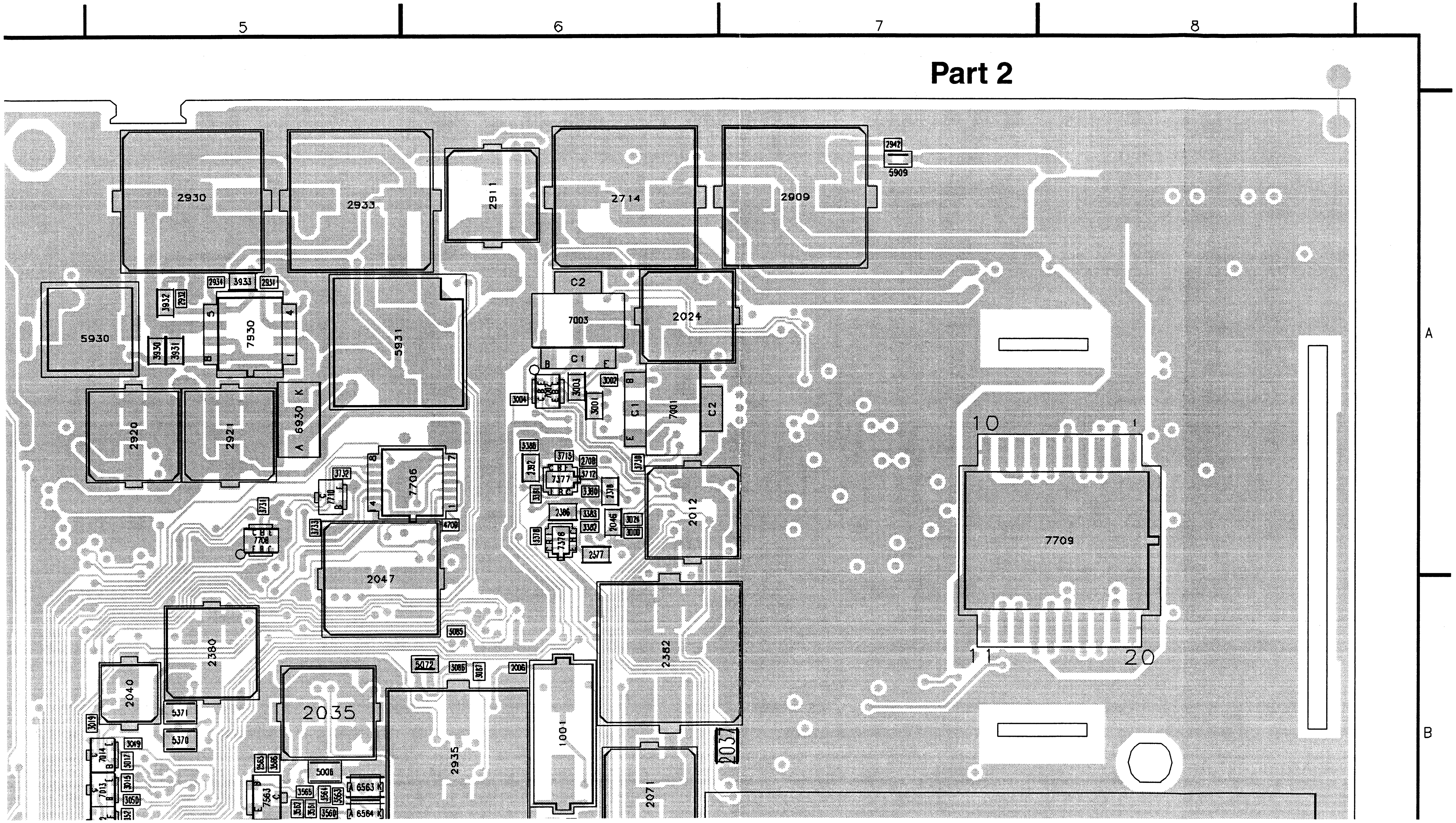
2418
2478
2502
1403
7501
7401
2402
3441
1401
2996
2833
2843
7808
2818
2810
2803
2809
2837
2813
2840
2806
2834
2495
2451
2465
2611
2401
2470
2435
7604
7605
5605
2930
2933
2911
2714
2909
5930
7930
5931
2024
7003
7001
2920
2921
6930
7706
2012
2047
2380
2040
2035
2935
1001
2382
2071
7709
10
11
20
7560
2355
2396
2061
2375
1008
2002
7562
2309
2381
2716
2707
2715
1302
3139 123 5804.2
E_14490_020.eps
040804

## Layout TV & Scaler Board: (Part 1 Bottom Side)


1
2
3
4
A
B
Part 1
5953
K 6951 A
7952
3952
3951
3954
3953
5952
2958
2957
2953
2994
5954
2960
5530
2530
2501
2417
2418
2478
1403
2434
7530
2502
2482
3411
3409
3410
3413
3412
3406
3417
3414
7501
AF28
AF25
AF16
AF11
AF2
AF1
2402
3441
13
14
20
21
25
30
51
50
31

E_14490_020a.eps
230404

## Layout TV & Scaler Board: (Part 2 Bottom Side)


5
6
7
8
A
B
Part 2
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2933
2911
2714
2909
2942
5909
5930
2934
3933
2931
3932
2932
7930
3930
3931
5931
C2
7003
C1
2024
3004
3003
3001
3002
7001
2920
2921
6930
3380
3715
2708
3712
7377
3381
3716
7706
3732
7710
3731
7708
3733
4708
2386
3383
3382
2046
3026
3008
7376
2577
2012
7709
10
11
20
2047
5085
2380
2382
5072
5086
3087
2006
2040
5371
5370
2035
2935
1001
2037
2071
5008
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6564
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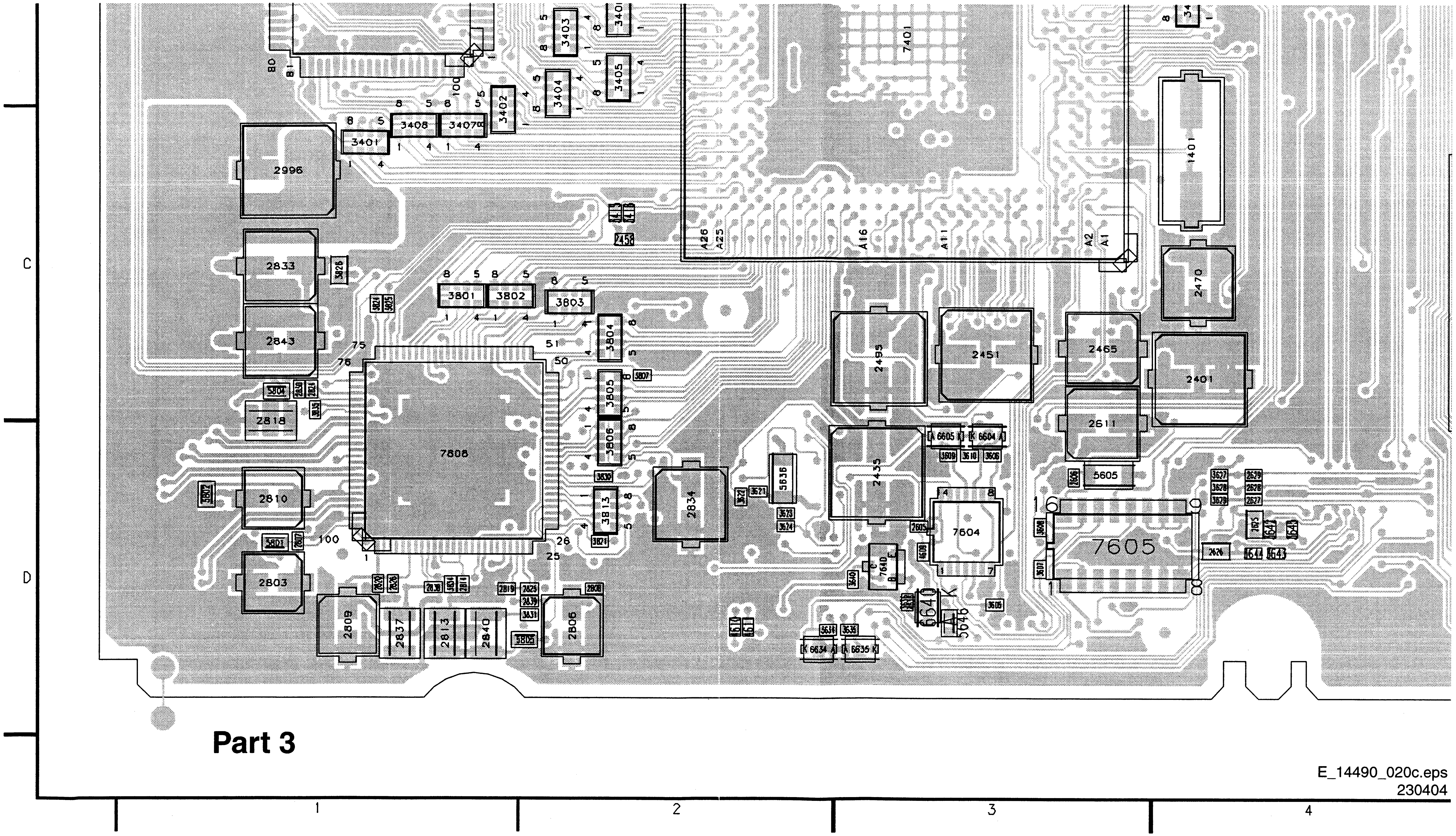
3049
3050

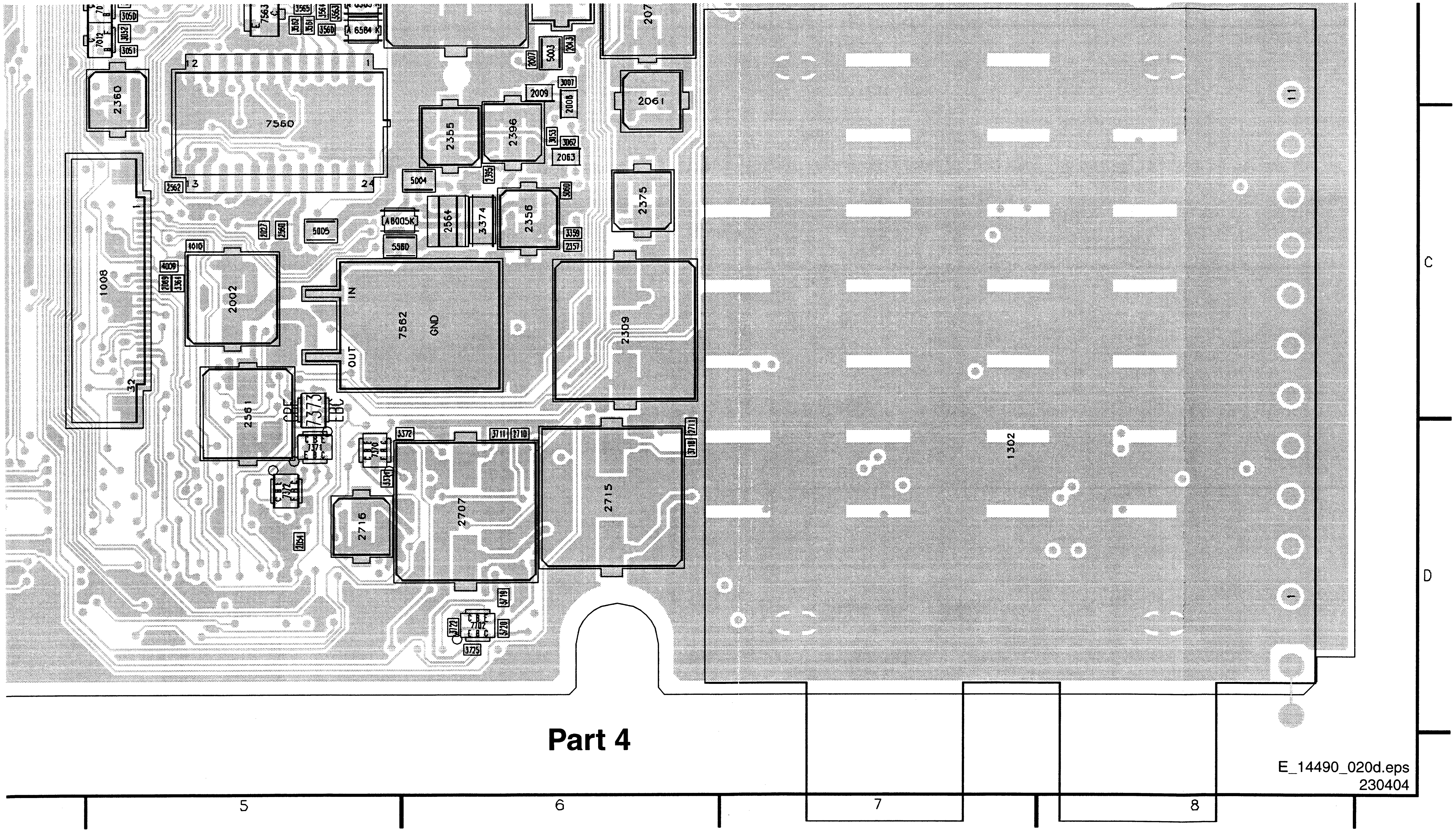
E_14490_020b.eps
230404

## Layout TV & Scaler Board: (Part 3 Bottom Side)

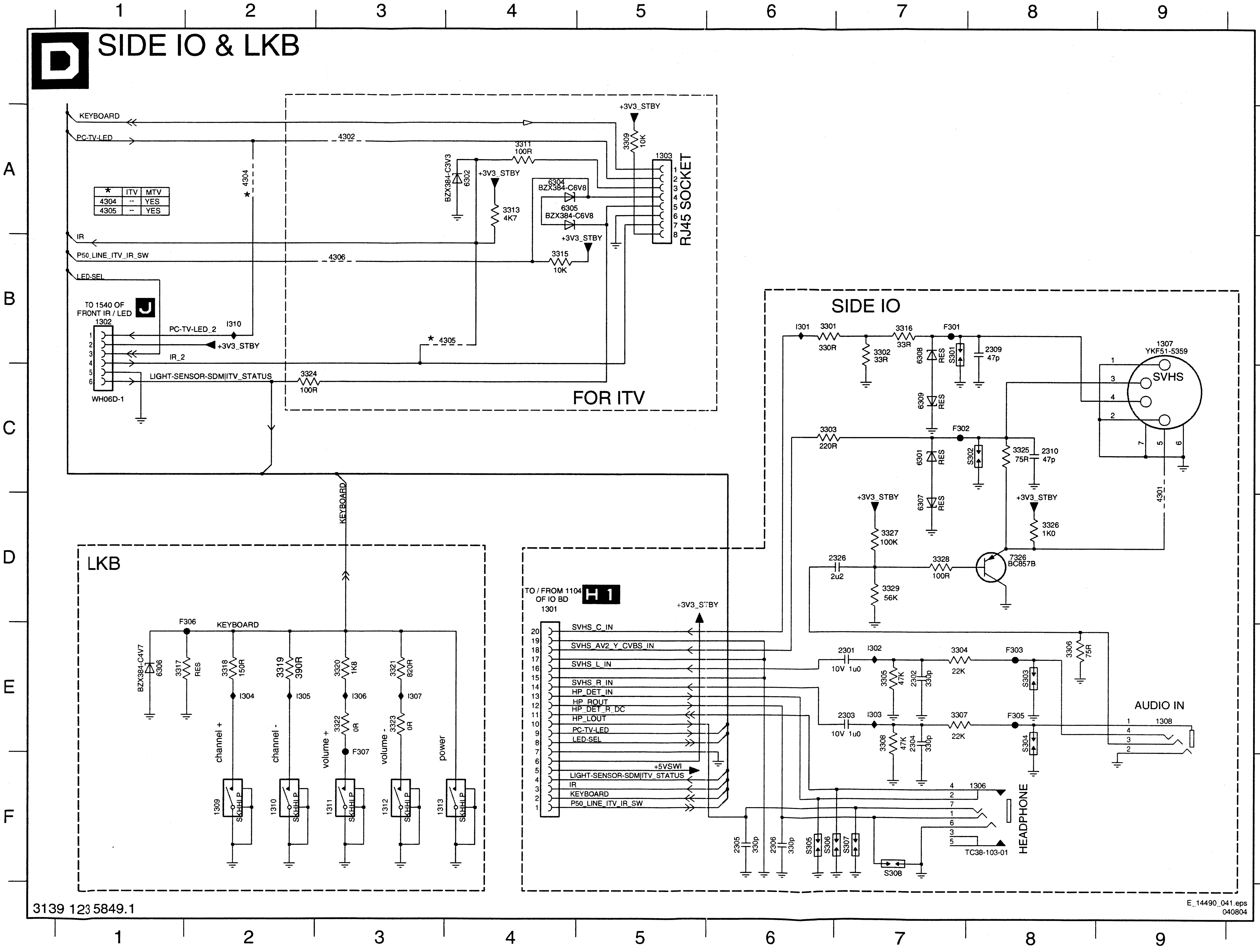

C
D
1
2
3
4
2996
2833
2843
2818
2810
2803
2809
2837
2813
2840
2806
2834
7808
3401
3408
3407
3402
3404
3403
3405
3801
3802
3803
3804
3805
3806
3813
5836
2495
2451
2465
2401
2470
2611
2435
7604
7605
7401
1401
5605
2458
6605
6604
6640
6634
6635
A26
A25
A16
A11
A2
A1
Part 3

E_14490_020c.eps
230404

## Layout TV & Scaler Board: (Part 4 Bottom Side)


2360
7560
1008
2002
7562
IN
OUT
GND
2309
2355
2396
2061
2575
2558
2564
3374
5004
5005
5580
2561
7373
2716
2707
2715
1302
Part 4
E_14490_020d.eps
230404
5
6
7
8
C
D

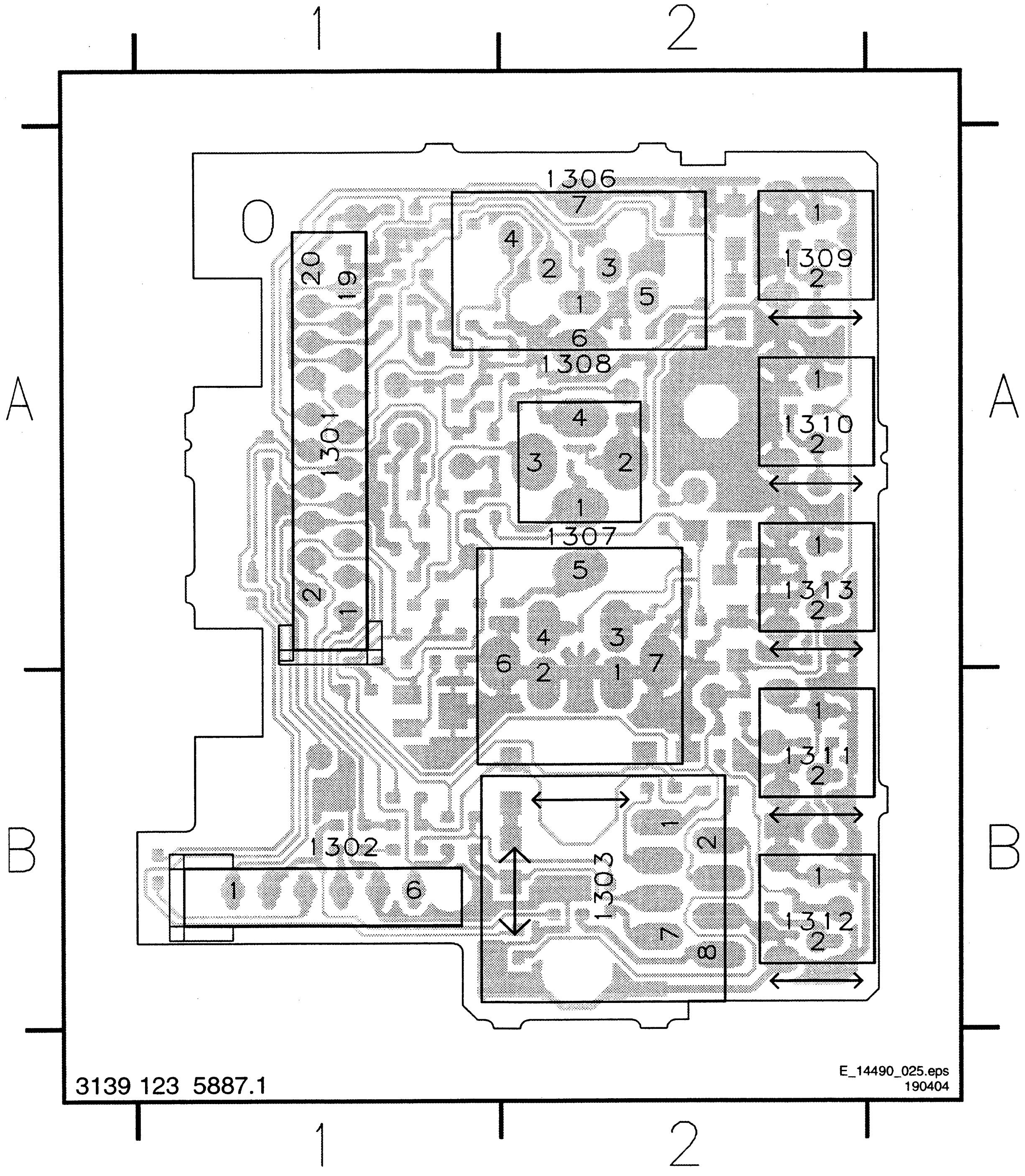
## Side IO and LKB Panel


D
SIDE IO & LKB
KEYBOARD
PC-TV-LED
IR
P50_LINE_ITV_IR_SW
LED-SEL
TO 1540 OF FRONT IR / LED
J
1302
WH06D-1
PC-TV-LED_2
+3V3_STBY
IR_2
LIGHT-SENSOR-SDM|ITV_STATUS
I310
4302
4304
4305
4306
3309 10K
3311 100R
6302 BZX384-C3V3
3313 4K7
6304 BZX384-C6V8
6305 BZX384-C6V8
3315 10K
3324 100R
1303
RJ45 SOCKET
FOR ITV
SIDE IO
I301
3301 330R
3302 33R
3316 33R
F301
6308 RES
S301
2309 47p
6309 RES
3303 220R
F302
6301 RES
S302
3325 75R
2310 47p
6307 RES
1307 YKF51-5359
SVHS
4301
3326 1K0
3327 100K
2326 2u2
3328 100R
3329 56K
7326 BC857B
TO / FROM 1104 OF IO BD
H 1
1301
SVHS_C_IN
SVHS_AV2_Y_CVBS_IN
SVHS_L_IN
SVHS_R_IN
HP_DET_IN
HP_ROUT
HP_DET_R_DC
HP_LOUT
PC-TV-LED
LED-SEL
+5VSWI
LIGHT-SENSOR-SDM|ITV_STATUS
IR
KEYBOARD
P50_LINE_ITV_IR_SW
2301 10V 1u0
I302
3305 47K
2302 330p
3304 22K
F303
S303
3306 75R
2303 10V 1u0
I303
3308 47K
2304 330p
3307 22K
F305
S304
AUDIO IN
1308
1306
HEADPHONE
TC38-103-01
2305 330p
2306 330p
S305
S306
S307
S308
LKB
F306
6306 BZX384-C4V7
3317 RES
3318 150R
3319 390R
3320 1K8
3321 820R
I304
I305
I306
I307
3322 0R
3323 0R
F307
channel +
channel -
volume +
volume -
power
1309
1310
1311
1312
1313
SKHHLP
3139 123 5849.1
E_14490_041.eps 040804

| * | ITV | MTV |
|---|---|---|
| 4304 | -- | YES |
| 4305 | -- | YES |

| | |
|---|---|
| 1301 | D4 |
| 1302 | B1 |
| 1303 | A5 |
| 1306 | F8 |
| 1307 | B9 |
| 1308 | E9 |
| 1309 | F2 |
| 1310 | F2 |
| 1311 | F3 |
| 1312 | F3 |
| 1313 | F3 |
| 2301 | E7 |
| 2302 | E7 |
| 2303 | E7 |
| 2304 | E7 |
| 2305 | F6 |
| 2306 | F6 |
| 2309 | B8 |
| 2310 | C8 |
| 2326 | D7 |
| 3301 | B6 |
| 3302 | B7 |
| 3303 | C6 |
| 3304 | E7 |
| 3305 | E7 |
| 3306 | E8 |
| 3307 | E7 |
| 3308 | E7 |
| 3309 | A5 |
| 3311 | A4 |
| 3313 | A4 |
| 3315 | B4 |
| 3316 | B7 |
| 3317 | E1 |
| 3318 | E2 |
| 3319 | E2 |
| 3320 | E3 |
| 3321 | E3 |
| 3322 | E3 |
| 3323 | E3 |
| 3324 | C2 |
| 3325 | C8 |
| 3326 | D8 |
| 3327 | D7 |
| 3328 | D7 |
| 3329 | D7 |
| 4301 | C9 |
| 4302 | A3 |
| 4304 | A2 |
| 4305 | B4 |
| 4306 | B3 |
| 6301 | C7 |
| 6302 | A4 |
| 6304 | A4 |
| 6305 | A4 |
| 6306 | E1 |
| 6307 | D7 |
| 6308 | B7 |
| 6309 | C7 |
| 7326 | D8 |
| F301 | B7 |
| F302 | C7 |
| F303 | E8 |
| F305 | E8 |
| F306 | E2 |
| F307 | F3 |
| I301 | B6 |
| I302 | E7 |
| I303 | E7 |
| I304 | E2 |
| I305 | E2 |
| I306 | E3 |
| I307 | E3 |
| I310 | B2 |
| S301 | B7 |
| S302 | C8 |
| S303 | E8 |
| S304 | E8 |
| S305 | F6 |
| S306 | F6 |
| S307 | F7 |
| S308 | F7 |

## Layout Side IO and LKB Panel (Top Side)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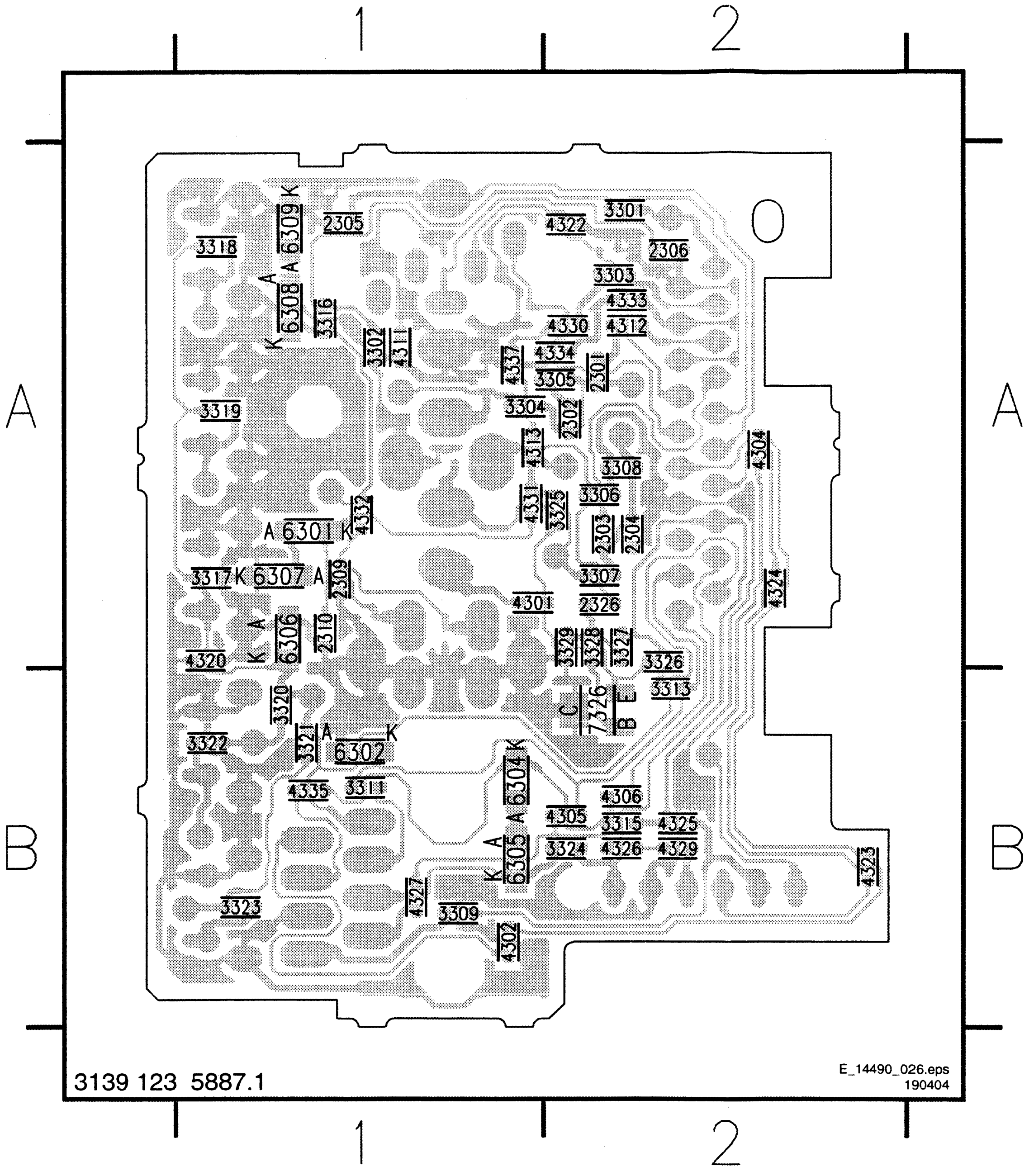
2
A
B
1306
1308
1307
1301
1302
1303
1309
1310
1313
1311
1312
3139 123 5887.1
E_14490_025.eps
190404

| | |
|---|---|
| 1301 | A1 |
| 1302 | B1 |
| 1303 | B2 |
| 1306 | A2 |
| 1307 | A2 |
| 1308 | A2 |
| 1309 | A2 |
| 1310 | A2 |
| 1311 | B2 |
| 1312 | B2 |
| 1313 | A2 |

## Layout Side IO and LKB Panel (Bottom Side)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A
B
3318
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6308
2305
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3302
4311
3319
6301
4332
3317
6307
2309
4320
6306
2310
3320
3322
3321
6302
4335
3311
3323
4327
3309
4302
6305
6304
4322
3301
2306
3303
4333
4330
4312
4337
4334
3305
2301
3304
2302
4313
3308
3306
4331
3325
2303
2304
4301
3307
2326
3329
3328
3327
3326
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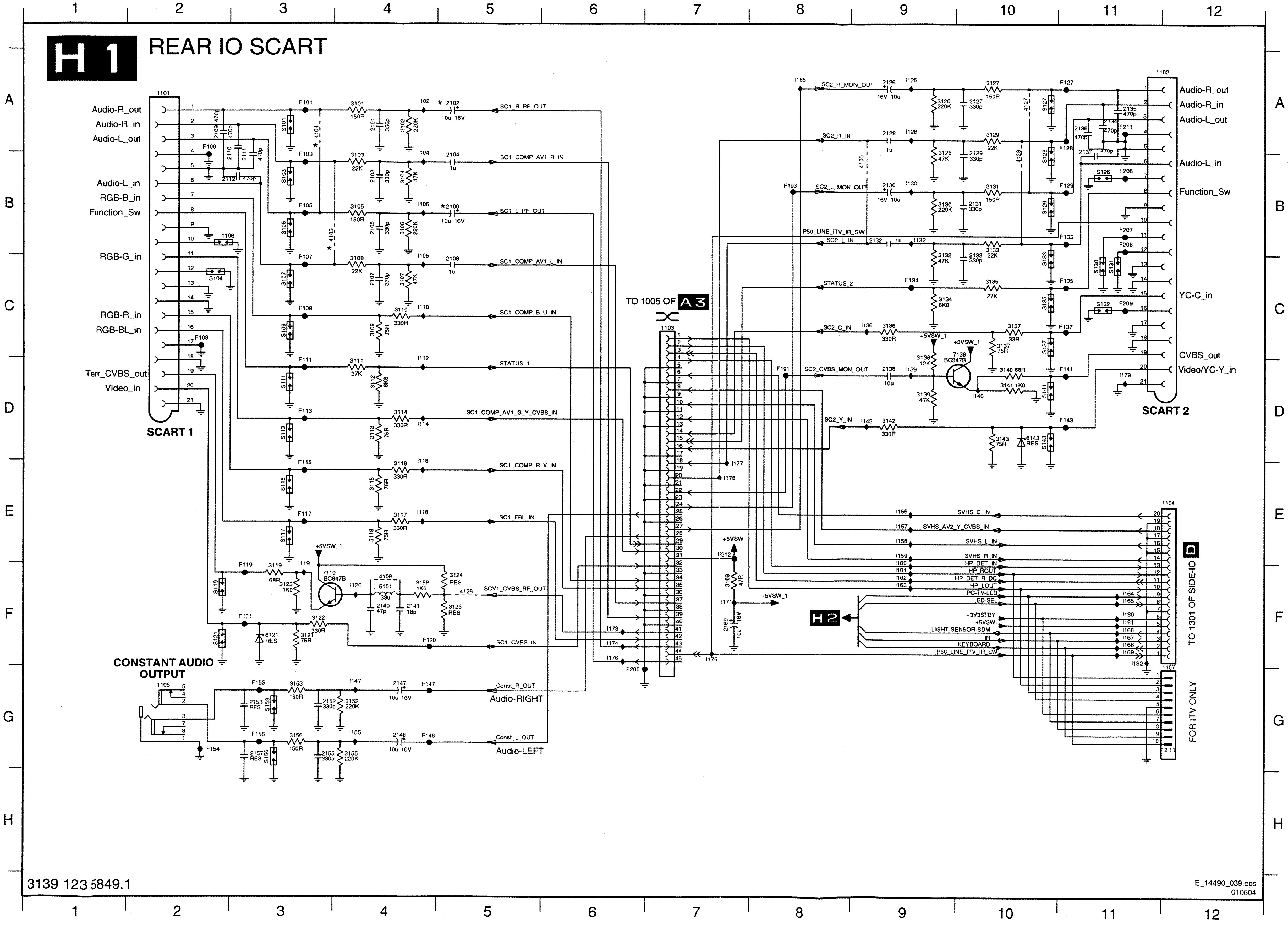
4305
3315
4325
3324
4326
4329
4304
4324
4323
3139 123 5887.1
E_14490_026.eps
190404

| | |
|---|---|
| 2301 | A2 |
| 2302 | A2 |
| 2303 | A2 |
| 2304 | A2 |
| 2305 | A1 |
| 2306 | A2 |
| 2309 | A1 |
| 2310 | A1 |
| 2326 | A2 |
| 3301 | A2 |
| 3302 | A1 |
| 3303 | A2 |
| 3304 | A1 |
| 3305 | A2 |
| 3306 | A2 |
| 3307 | A2 |
| 3308 | A2 |
| 3309 | B1 |
| 3311 | B1 |
| 3313 | B2 |
| 3315 | B2 |
| 3316 | A1 |
| 3317 | A1 |
| 3318 | A1 |
| 3319 | A1 |
| 3320 | B1 |
| 3321 | B1 |
| 3322 | B1 |
| 3323 | B1 |
| 3324 | B2 |
| 3325 | A2 |
| 3326 | A2 |
| 3327 | A2 |
| 3328 | A2 |
| 3329 | A2 |
| 4301 | A1 |
| 4302 | B1 |
| 4304 | A2 |
| 4305 | B2 |
| 4306 | B2 |
| 4311 | A1 |
| 4312 | A2 |
| 4313 | A1 |
| 4320 | A1 |
| 4322 | A2 |
| 4323 | B2 |
| 4324 | A2 |
| 4325 | B2 |
| 4326 | B2 |
| 4327 | B1 |
| 4329 | B2 |
| 4330 | A2 |
| 4331 | A1 |
| 4332 | A1 |
| 4333 | A2 |
| 4334 | A2 |
| 4335 | B1 |
| 4337 | A1 |
| 6301 | A1 |
| 6302 | B1 |
| 6304 | B1 |
| 6305 | B1 |
| 6306 | A1 |
| 6307 | A1 |
| 6308 | A1 |
| 6309 | A1 |
| 7326 | B2 |

## Rear IO Panel: Scart (17")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REAR IO SCART
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Audio-R_out
Audio-R_in
Audio-L_out
Audio-L_in
RGB-B_in
Function_Sw
RGB-G_in
RGB-R_in
RGB-BL_in
Terr_CVBS_out
Video_in
SCART 1
SC1_R_RF_OUT
SC1_COMP_AV1_R_IN
SC1_L_RF_OUT
SC1_COMP_AV1_L_IN
SC1_COMP_B_U_IN
STATUS_1
SC1_COMP_AV1_G_Y_CVBS_IN
SC1_COMP_R_V_IN
SC1_FBL_IN
SCV1_CVBS_RF_OUT
SC1_CVBS_IN
+5VSW_1
7119 BC847B
CONSTANT AUDIO OUTPUT
1105
Const_R_OUT
Audio-RIGHT
Const_L_OUT
Audio-LEFT
TO 1005 OF A3
1103
+5VSW
SC2_R_MON_OUT
SC2_R_IN
SC2_L_MON_OUT
P50_LINE_ITV_IR_SW
SC2_L_IN
STATUS_2
SC2_C_IN
SC2_CVBS_MON_OUT
SC2_Y_IN
7138 BC847B
1102
Audio-R_out
Audio-R_in
Audio-L_out
Audio-L_in
Function_Sw
YC-C_in
CVBS_out
Video/YC-Y_in
SCART 2
1104
SVHS_C_IN
SVHS_AV2_Y_CVBS_IN
SVHS_L_IN
SVHS_R_IN
HP_DET_IN
HP_ROUT
HP_DET_R_DC
HP_LOUT
PC-TV-LED
LED-SEL
H2
+3V3STBY
+5VSWI
LIGHT-SENSOR-SDM
IR
KEYBOARD
P50_LINE_ITV_IR_SW
TO 1301 OF SIDE-IO D
1107
FOR ITV ONLY
3139 123 5849.1
E_14490_039.eps
010604

| | |
|---|---|
| 1101 | A2 |
| 1102 | A11 |
| 1103 | C7 |
| 1104 | E12 |
| 1105 | G2 |
| 1106 | B2 |
| 1107 | G12 |
| 2101 | A4 |
| 2102 | A5 |
| 2103 | B4 |
| 2104 | B5 |
| 2105 | B4 |
| 2106 | B5 |
| 2107 | C4 |
| 2108 | C5 |
| 2109 | A2 |
| 2110 | B2 |
| 2111 | B3 |
| 2112 | B2 |
| 2126 | A9 |
| 2127 | A10 |
| 2128 | A9 |
| 2129 | B10 |
| 2130 | B9 |
| 2131 | B10 |
| 2132 | B9 |
| 2133 | C10 |
| 2134 | A11 |
| 2135 | A11 |
| 2136 | A11 |
| 2137 | A11 |
| 2138 | D9 |
| 2140 | F4 |
| 2141 | F4 |
| 2147 | G4 |
| 2148 | G4 |
| 2152 | G3 |
| 2153 | G3 |
| 2155 | G3 |
| 2157 | G3 |
| 2169 | F7 |
| 3101 | A4 |
| 3102 | A4 |
| 3103 | B4 |
| 3104 | B4 |
| 3105 | B4 |
| 3106 | B4 |
| 3107 | C4 |
| 3108 | C4 |
| 3109 | C4 |
| 3110 | C4 |
| 3111 | D4 |
| 3112 | D4 |
| 3113 | D4 |
| 3114 | D4 |
| 3115 | E4 |
| 3116 | E4 |
| 3117 | E4 |
| 3118 | E4 |
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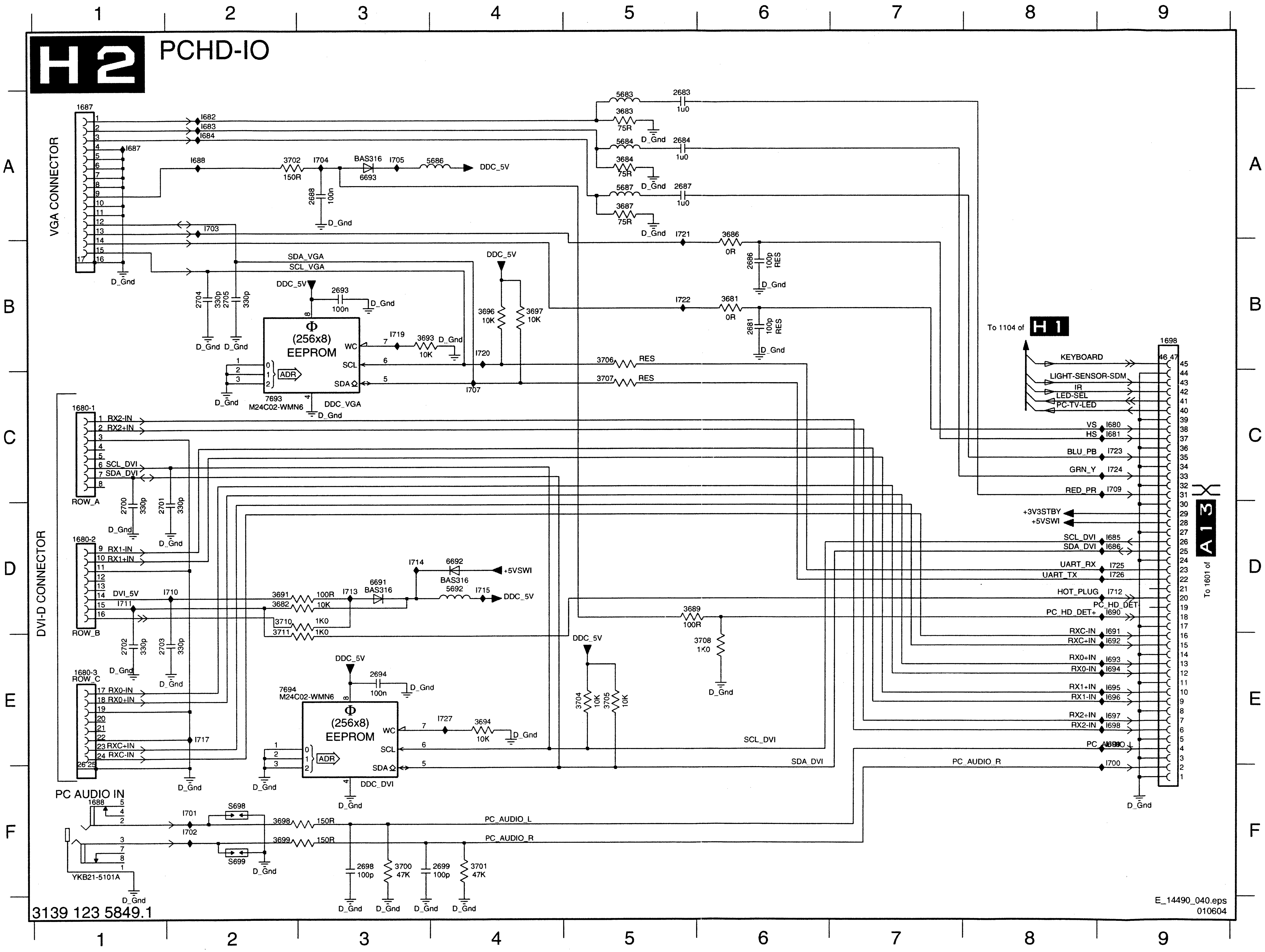
| 3121 | F3 |
| 3122 | F3 |
| 3123 | F3 |
| 3124 | F5 |
| 3125 | F5 |
| 3126 | A9 |
| 3127 | A10 |
| 3128 | B9 |
| 3129 | A10 |
| 3130 | B9 |
| 3131 | B10 |
| 3132 | C9 |
| 3133 | B10 |
| 3134 | C9 |
| 3135 | C10 |
| 3136 | C9 |
| 3137 | C10 |
| 3138 | C9 |
| 3139 | D9 |
| 3140 | D10 |
| 3141 | D10 |
| 3142 | D9 |
| 3143 | D10 |
| 3152 | G4 |
| 3153 | G3 |
| 3155 | G4 |
| 3156 | G3 |
| 3157 | C10 |
| 3158 | F4 |
| 3169 | F7 |
| 4103 | B3 |
| 4104 | A3 |
| 4105 | B9 |
| 4106 | F4 |
| 4126 | F5 |
| 4127 | A10 |
| 4128 | B10 |
| 5101 | F4 |
| 6121 | F3 |
| 6143 | D10 |
| 7119 | F4 |
| 7138 | C9 |
| F101 | A3 |
| F103 | B3 |
| F105 | B3 |
| F106 | A2 |
| F107 | C3 |
| F108 | C2 |
| F109 | C3 |
| F111 | D3 |
| F113 | D3 |
| F115 | E3 |
| F117 | E3 |
| F119 | F3 |
| F120 | F4 |
| F121 | F3 |
| F127 | A11 |
| F128 | A11 |
| F129 | B11 |
| F133 | B11 |
| F134 | C9 |
| F135 | C11 |
| F137 | C11 |
| F141 | D11 |
| F143 | D11 |
| F147 | G4 |
| F148 | G4 |
| F153 | G3 |
| F154 | G2 |
| F156 | G3 |
| F191 | D8 |
| F193 | B8 |
| F205 | G6 |
| F206 | B11 |
| F207 | B11 |
| F208 | B11 |
| F209 | C11 |
| F211 | A11 |
| F212 | E7 |
| I102 | A4 |
| I104 | B4 |
| I105 | C4 |
| I106 | B4 |
| I110 | C4 |
| I112 | D4 |
| I114 | D4 |
| I116 | E4 |
| I118 | E4 |
| I119 | F3 |
| I120 | F4 |
| I126 | A9 |
| I128 | A9 |
| I130 | B9 |
| I132 | B9 |
| I136 | C9 |
| I139 | D9 |
| I140 | D10 |
| I142 | D9 |
| I147 | G4 |
| I155 | G4 |
| I156 | E9 |
| I157 | E9 |
| I158 | E9 |
| I159 | E9 |
| I160 | E9 |
| I161 | F9 |
| I162 | F9 |
| I163 | F9 |
| I164 | F11 |
| I165 | F11 |
| I166 | F11 |
| I167 | F11 |
| I168 | F11 |
| I169 | F11 |
| I171 | F7 |
| I173 | F6 |
| I174 | F6 |
| I175 | F7 |
| I176 | F6 |
| I177 | E7 |
| I178 | E7 |
| I179 | D11 |
| I180 | F11 |
| I181 | F11 |
| I182 | F11 |
| I185 | A8 |
| S101 | A3 |
| S103 | B3 |
| S104 | C2 |
| S105 | B3 |
| S107 | C3 |
| S109 | C3 |
| S111 | D3 |
| S113 | D3 |
| S115 | E3 |
| S117 | E3 |
| S119 | F2 |
| S121 | F2 |
| S126 | B11 |
| S127 | A10 |
| S128 | B10 |
| S129 | B10 |
| S130 | C11 |
| S131 | C11 |
| S132 | C11 |
| S133 | C10 |
| S135 | C10 |
| S137 | C10 |
| S141 | D10 |
| S143 | D10 |
| S153 | G3 |
| S156 | G3 |

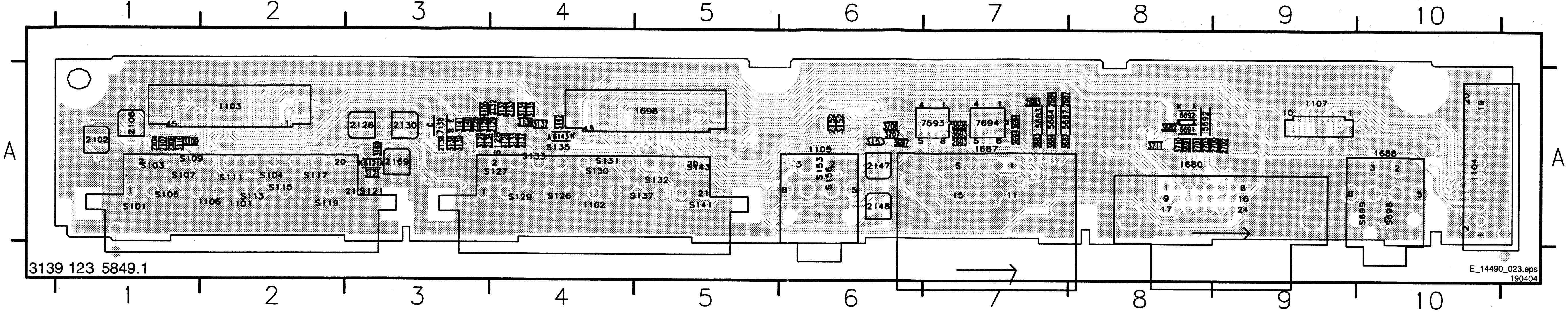
## Rear IO Panel: PCHD-IO (17")


H2
PCHD-IO
1687
VGA CONNECTOR
D_Gnd
I682
I683
I684
I687
I688
3702
150R
I704
BAS316
6693
I705
5686
DDC_5V
2688
100n
I703
SDA_VGA
SCL_VGA
2704
330p
2705
330p
DDC_5V
2693
100n
Φ
(256x8)
EEPROM
WC
SCL
SDA
ADR
7693
M24C02-WMN6
DDC_VGA
I719
3693
10K
I720
I707
3696
10K
3697
10K
5683
2683
1u0
3683
75R
5684
2684
1u0
3684
75R
5687
2687
1u0
3687
75R
I721
3686
0R
2686
100p
RES
I722
3681
0R
2681
100p
RES
3706
RES
3707
RES
1680-1
RX2-IN
RX2+IN
SCL_DVI
SDA_DVI
ROW_A
2700
330p
2701
330p
1680-2
RX1-IN
RX1+IN
DVI_5V
I711
I710
ROW_B
2702
330p
2703
330p
DVI-D CONNECTOR
1680-3
ROW_C
RX0-IN
RX0+IN
RXC+IN
RXC-IN
I717
3691
100R
3682
10K
I713
6691
BAS316
I714
6692
BAS316
+5VSWI
5692
I715
3710
1K0
3711
1K0
3689
100R
3708
1K0
DDC_5V
3704
10K
3705
10K
7694
M24C02-WMN6
2694
100n
I727
3694
10K
DDC_DVI
SCL_DVI
SDA_DVI
PC AUDIO IN
1688
I701
I702
S698
S699
3698
150R
3699
150R
PC_AUDIO_L
PC_AUDIO_R
2698
100p
3700
47K
2699
100p
3701
47K
YKB21-5101A
To 1104 of H1
1698
KEYBOARD
LIGHT-SENSOR-SDM
IR
LED-SEL
PC-TV-LED
VS
HS
I680
I681
BLU_PB
I723
GRN_Y
I724
RED_PR
I709
+3V3STBY
+5VSWI
SCL_DVI
I685
SDA_DVI
I686
UART_RX
I725
UART_TX
I726
HOT_PLUG
I712
PC_HD_DET
PC_HD_DET+
I690
RXC-IN
I691
RXC+IN
I692
RX0+IN
I693
RX0-IN
I694
RX1+IN
I695
RX1-IN
I696
RX2+IN
I697
RX2-IN
I698
PC_AUDIO_L
I699
PC_AUDIO_R
I700
To 1601 of A13
3139 123 5849.1
E_14490_040.eps
010604
1 2 3 4 5 6 7 8 9
A B C D E F

| | |
|---|---|
| 1680-1 | C1 |
| 1680-2 | D1 |
| 1680-3 | E1 |
| 1687 | A1 |
| 1688 | F1 |
| 1698 | B9 |
| 2681 | B6 |
| 2683 | A5 |
| 2684 | A5 |
| 2686 | B6 |
| 2687 | A5 |
| 2688 | A3 |
| 2693 | B3 |
| 2694 | E3 |
| 2698 | F3 |
| 2699 | F4 |
| 2700 | D1 |
| 2701 | D1 |
| 2702 | E1 |
| 2703 | E1 |
| 2704 | B2 |
| 2705 | B2 |
| 3681 | B6 |
| 3682 | D2 |
| 3683 | A5 |
| 3684 | A5 |
| 3686 | A6 |
| 3687 | A5 |
| 3689 | D5 |
| 3691 | D2 |
| 3693 | B3 |
| 3694 | E4 |
| 3696 | B4 |
| 3697 | B4 |
| 3698 | F2 |
| 3699 | F2 |
| 3700 | F3 |
| 3701 | F4 |
| 3702 | A2 |
| 3704 | E5 |
| 3705 | E5 |
| 3706 | B5 |
| 3707 | C5 |
| 3708 | E6 |
| 3710 | D2 |
| 3711 | E2 |
| 5683 | A5 |
| 5684 | A5 |
| 5686 | A4 |
| 5687 | A5 |
| 5692 | D4 |
| 6691 | D3 |
| 6692 | D4 |
| 6693 | A3 |
| 7693 | C2 |
| 7694 | E2 |
| I680 | C9 |
| I681 | C9 |
| I682 | A2 |
| I683 | A2 |
| I684 | A2 |
| I685 | D9 |
| I686 | D9 |
| I687 | A1 |
| I688 | A2 |
| I690 | D9 |
| I691 | D9 |
| I692 | E9 |
| I693 | E9 |
| I694 | E9 |
| I695 | E9 |
| I696 | E9 |
| I697 | E9 |
| I698 | E9 |
| I699 | E9 |
| I700 | E9 |
| I701 | F2 |
| I702 | F2 |
| I703 | A2 |
| I704 | A3 |
| I705 | A3 |
| I707 | C4 |
| I709 | C9 |
| I710 | D2 |
| I711 | D1 |
| I712 | D9 |
| I713 | D3 |
| I714 | D3 |
| I715 | D4 |
| I717 | E2 |
| I719 | B3 |
| I720 | B4 |
| I721 | A5 |
| I722 | B5 |
| I723 | C9 |
| I724 | C9 |
| I725 | D9 |
| I726 | D9 |
| I727 | E4 |
| S698 | F2 |
| S699 | F2 |

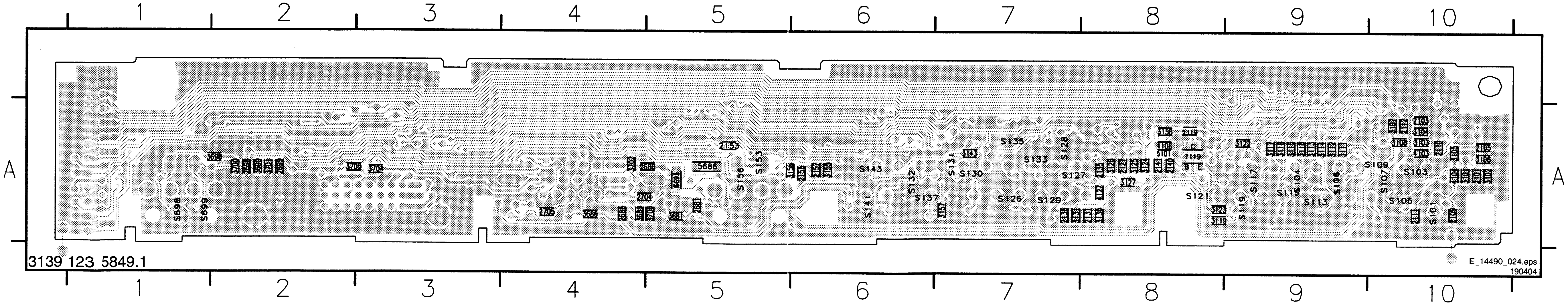
## Layout Rear IO Panel (17”) (Top Side)

| | |
|---|---|
| 1101 | A2 |
| 1102 | A4 |
| 1103 | A2 |
| 1104 | A10 |
| 1105 | A6 |
| 1107 | A9 |
| 1680 | A8 |
| 1687 | A7 |
| 1688 | A10 |
| 1698 | A5 |
| 2102 | A1 |
| 2104 | A1 |
| 2106 | A1 |
| 2107 | A1 |
| 2108 | A1 |
| 2126 | A3 |
| 2128 | A3 |
| 2129 | A4 |
| 2130 | A3 |
| 2132 | A4 |
| 2133 | A4 |
| 2134 | A3 |
| 2137 | A4 |
| 2138 | A3 |
| 2147 | A6 |
| 2148 | A6 |
| 2152 | A6 |
| 2169 | A3 |
| 2683 | A7 |
| 2684 | A7 |
| 2687 | A7 |
| 2693 | A7 |
| 2694 | A7 |
| 2700 | A9 |
| 2701 | A8 |
| 2702 | A9 |
| 2703 | A8 |
| 3109 | A1 |
| 3110 | A1 |
| 3121 | A3 |
| 3128 | A3 |
| 3129 | A3 |
| 3132 | A4 |
| 3133 | A4 |
| 3134 | A4 |
| 3135 | A4 |
| 3136 | A4 |
| 3137 | A4 |
| 3138 | A3 |
| 3139 | A3 |
| 3140 | A3 |
| 3141 | A3 |
| 3142 | A4 |
| 3152 | A6 |
| 3153 | A6 |
| 3169 | A3 |
| 3682 | A8 |
| 3683 | A7 |
| 3684 | A7 |
| 3687 | A7 |
| 3691 | A8 |
| 3693 | A7 |
| 3694 | A7 |
| 3696 | A7 |
| 3697 | A6 |
| 3706 | A6 |
| 3707 | A6 |
| 3710 | A8 |
| 3711 | A8 |
| 4105 | A3 |
| 4128 | A4 |
| 5683 | A7 |
| 5684 | A7 |
| 5687 | A7 |
| 5692 | A8 |
| 6121 | A3 |
| 6143 | A4 |
| 6691 | A8 |
| 6692 | A8 |
| 7138 | A3 |
| 7693 | A7 |
| 7694 | A7 |

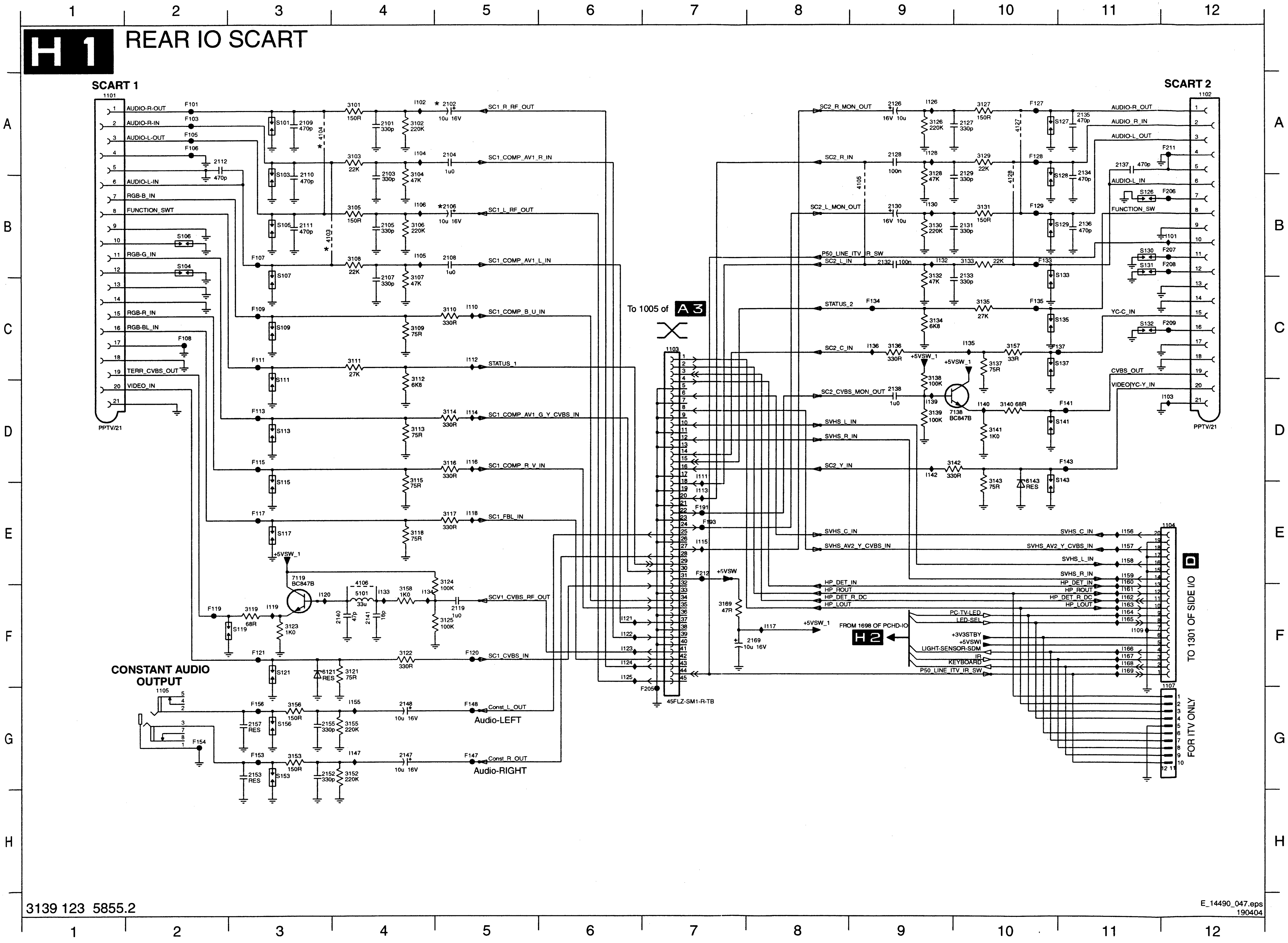

1
2
3
4
5
6
7
8
9
10
A
1103
1698
1107
1105
1687
1680
1688
1104
1106
1101
1102
7693
7694
2102
2106
2126
2130
2169
2147
2148
3139 123 5849.1
E_14490_023.eps
190404

## Layout Rear IO Panel(17”) (Bottom Side)

| | |
|---|---|
| 2105 | A10 |
| 2109 | A10 |
| 2110 | A10 |
| 2119 | A8 |
| 2127 | A8 |
| 2131 | A8 |
| 2140 | A8 |
| 2141 | A8 |
| 2153 | A5 |
| 2681 | A5 |
| 2686 | A4 |
| 2688 | A5 |
| 2704 | A4 |
| 2705 | A4 |
| 3101 | A10 |
| 3104 | A10 |
| 3105 | A10 |
| 3106 | A10 |
| 3111 | A9 |
| 3112 | A9 |
| 3113 | A9 |
| 3116 | A9 |
| 3117 | A9 |
| 3118 | A9 |
| 3123 | A8 |
| 3124 | A8 |
| 3125 | A8 |
| 3130 | A8 |
| 3131 | A7 |
| 3143 | A7 |
| 3157 | A7 |
| 3158 | A8 |
| 3681 | A5 |
| 3698 | A2 |
| 3699 | A2 |
| 3700 | A2 |
| 3704 | A3 |
| 3705 | A2 |
| 3708 | A5 |
| 4106 | A8 |
| 4127 | A8 |
| 5101 | A8 |
| 7119 | A8 |

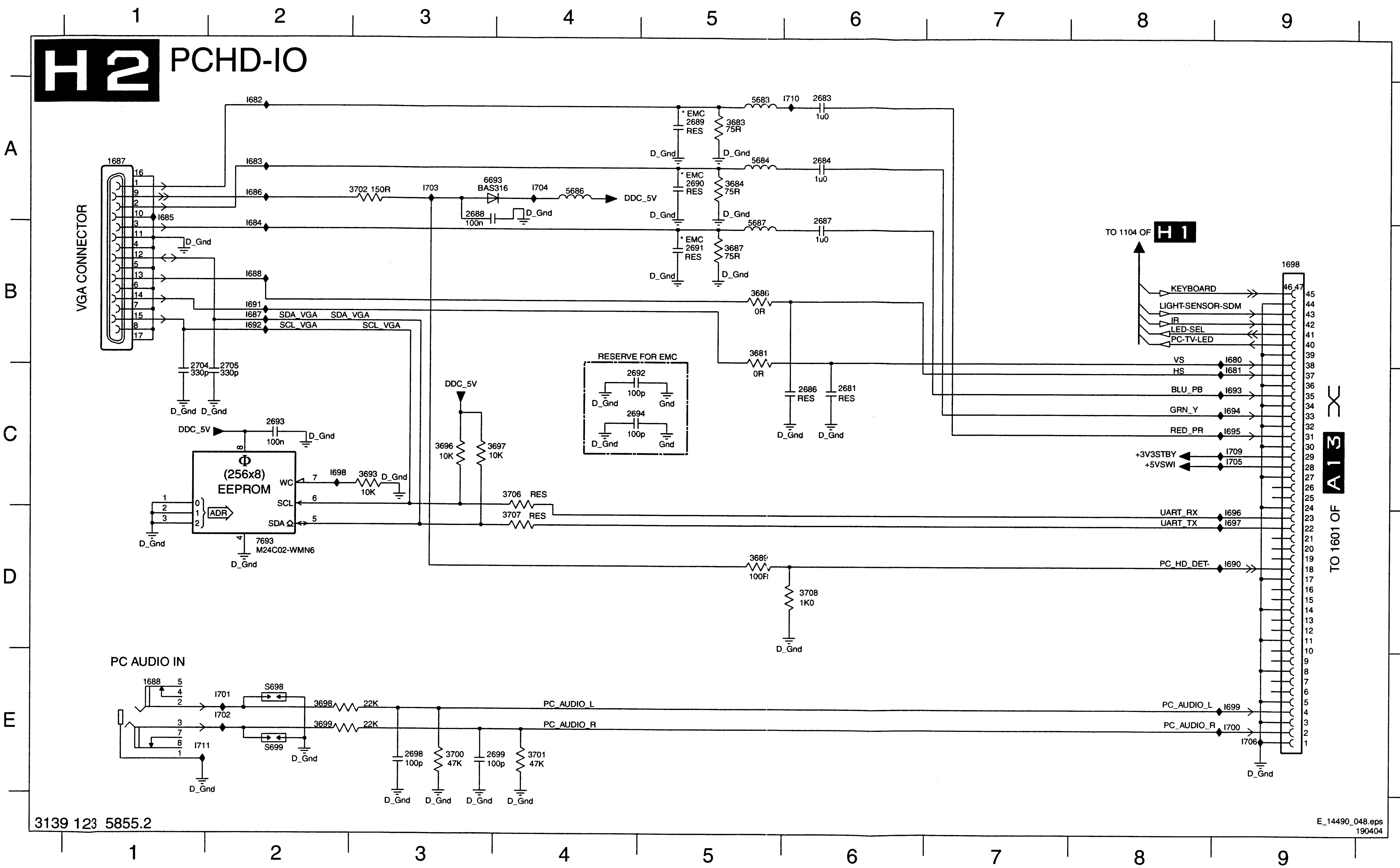

1
2
3
4
5
6
7
8
9
10
A
5686
7119
3139 123 5849.1
E_14490_024.eps
190404

## Rear IO Panel: Scart (23"/26")


H 1
REAR IO SCART
SCART 1
SCART 2
AUDIO-R-OUT
AUDIO-R-IN
AUDIO-L-OUT
AUDIO-L-IN
RGB-B_IN
FUNCTION_SWT
RGB-G_IN
RGB-R_IN
RGB-BL_IN
TERR_CVBS_OUT
VIDEO_IN
PPTV/21
SC1_R_RF_OUT
SC1_COMP_AV1_R_IN
SC1_L_RF_OUT
SC1_COMP_AV1_L_IN
SC1_COMP_B_U_IN
STATUS_1
SC1_COMP_AV1_G_Y_CVBS_IN
SC1_COMP_R_V_IN
SC1_FBL_IN
SCV1_CVBS_RF_OUT
SC1_CVBS_IN
7119 BC847B
+5VSW_1
CONSTANT AUDIO OUTPUT
Const_L_OUT
Audio-LEFT
Const_R_OUT
Audio-RIGHT
To 1005 of A3
45FLZ-SM1-R-TB
+5VSW
FROM 1698 OF PCHD-IO
H2
SC2_R_MON_OUT
SC2_R_IN
SC2_L_MON_OUT
P50_LINE_ITV_IR_SW
SC2_L_IN
STATUS_2
SC2_C_IN
SC2_CVBS_MON_OUT
SVHS_L_IN
SVHS_R_IN
SC2_Y_IN
7138 BC847B
SVHS_C_IN
SVHS_AV2_Y_CVBS_IN
HP_DET_IN
HP_ROUT
HP_DET_R_DC
HP_LOUT
PC-TV-LED
LED-SEL
+3V3STBY
+5VSWI
LIGHT-SENSOR-SDM
IR
KEYBOARD
P50_LINE_ITV_IR_SW
FUNCTION_SW
YC-C_IN
CVBS_OUT
VIDEO|YC-Y_IN
TO 1301 OF SIDE I/O
D
FOR ITV ONLY
3139 123 5855.2
E_14490_047.eps
190404

|  |  |
|---|---|
| 1101 | A1 |
| 1102 | A12 |
| 1103 | C7 |
| 1104 | E12 |
| 1105 | G2 |
| 1107 | G12 |
| 2101 | A4 |
| 2102 | A5 |
| 2103 | B4 |
| 2104 | A5 |
| 2105 | B4 |
| 2106 | B5 |
| 2107 | C4 |
| 2108 | B5 |
| 2109 | A3 |
| 2110 | B3 |
| 2111 | B3 |
| 2112 | A2 |
| 2119 | F5 |
| 2126 | A9 |
| 2127 | A10 |
| 2128 | A9 |
| 2129 | B10 |
| 2130 | B9 |
| 2131 | B10 |
| 2132 | B9 |
| 2133 | C10 |
| 2134 | B11 |
| 2135 | A11 |
| 2136 | B11 |
| 2137 | A11 |
| 2138 | D9 |
| 2140 | F4 |
| 2141 | F4 |
| 2147 | G4 |
| 2148 | G4 |
| 2152 | G3 |
| 2153 | G3 |
| 2155 | G3 |
| 2157 | G3 |
| 2169 | F7 |
| 3101 | A4 |
| 3102 | A4 |
| 3103 | A4 |
| 3104 | B4 |
| 3105 | B4 |
| 3106 | B4 |
| 3107 | C4 |
| 3108 | B4 |
| 3109 | C4 |
| 3110 | C5 |
| 3111 | C4 |
| 3112 | D4 |
| 3113 | D4 |
| 3114 | D5 |
| 3115 | E4 |
| 3116 | D5 |
| 3117 | E5 |
| 3118 | E4 |
| 3119 | F3 |
| 3121 | F4 |
| 3122 | F4 |
| 3123 | F3 |
| 3124 | E5 |
| 3125 | F5 |
| 3126 | A9 |
| 3127 | A10 |
| 3128 | B9 |
| 3129 | A10 |
| 3130 | B9 |
| 3131 | B10 |
| 3132 | C9 |
| 3133 | B10 |
| 3134 | C9 |
| 3135 | C10 |
| 3136 | C9 |
| 3137 | C10 |
| 3138 | C9 |
| 3139 | D9 |
| 3140 | D10 |
| 3141 | D10 |
| 3142 | D10 |
| 3143 | E10 |
| 3152 | G4 |
| 3153 | G3 |
| 3155 | G4 |
| 3156 | G3 |
| 3157 | C10 |
| 3158 | F4 |
| 3169 | F7 |
| 4103 | B3 |
| 4104 | A3 |
| 4105 | B9 |
| 4106 | F4 |
| 4127 | A10 |
| 4128 | B10 |
| 5101 | F4 |
| 6121 | F3 |
| 6143 | E10 |
| 7119 | E3 |
| 7138 | D9 |
| F101 | A2 |
| F103 | A2 |
| F105 | A2 |
| F106 | A2 |
| F107 | B3 |
| F108 | C2 |
| F109 | C3 |
| F111 | C3 |
| F113 | D3 |
| F115 | D3 |
| F117 | E3 |
| F119 | F2 |
| F120 | F5 |
| F121 | F3 |
| F127 | A10 |
| F128 | A10 |
| F129 | B10 |
| F133 | B10 |
| F134 | C9 |
| F135 | C10 |
| F137 | C11 |
| F141 | D11 |
| F143 | D11 |
| F147 | G5 |
| F148 | G5 |
| F153 | G3 |
| F154 | G2 |
| F156 | G3 |
| F191 | E7 |
| F193 | E7 |
| F205 | G7 |
| F206 | B12 |
| F207 | B12 |
| F208 | B12 |
| F209 | C12 |
| F211 | A12 |
| F212 | E7 |
| I101 | B12 |
| I102 | A4 |
| I103 | D12 |
| I104 | A4 |
| I105 | B4 |
| I106 | B4 |
| I109 | F11 |
| I110 | C5 |
| I111 | D7 |
| I112 | C5 |
| I113 | E7 |
| I114 | D5 |
| I115 | E7 |
| I116 | D5 |
| I117 | F8 |
| I118 | E5 |
| I119 | F3 |
| I120 | F3 |
| I121 | F6 |
| I122 | F6 |
| I123 | F6 |
| I124 | F6 |
| I125 | F6 |
| I126 | A9 |
| I128 | A9 |
| I130 | B9 |
| I132 | B9 |
| I133 | F4 |
| I134 | F4 |
| I135 | C10 |
| I136 | C9 |
| I139 | D9 |
| I140 | D10 |
| I142 | D9 |
| I147 | G4 |
| I155 | G4 |
| I156 | E11 |
| I157 | E11 |
| I158 | E11 |
| I159 | E11 |
| I160 | E11 |
| I161 | F11 |
| I162 | F11 |
| I163 | F11 |
| I164 | F11 |
| I165 | F11 |
| I166 | F11 |
| I167 | F11 |
| I168 | F11 |
| I169 | F11 |
| S101 | A3 |
| S103 | A3 |
| S104 | B2 |
| S105 | B3 |
| S106 | B2 |
| S107 | B3 |
| S109 | C3 |
| S111 | C3 |
| S113 | D3 |
| S115 | D3 |
| S117 | E3 |
| S119 | F3 |
| S121 | F3 |
| S126 | B11 |
| S127 | A11 |
| S128 | A11 |
| S129 | B11 |
| S130 | B11 |
| S131 | B11 |
| S132 | C11 |
| S133 | B11 |
| S135 | C11 |
| S137 | C11 |
| S141 | D11 |
| S143 | D11 |
| S153 | G3 |
| S156 | G3 |

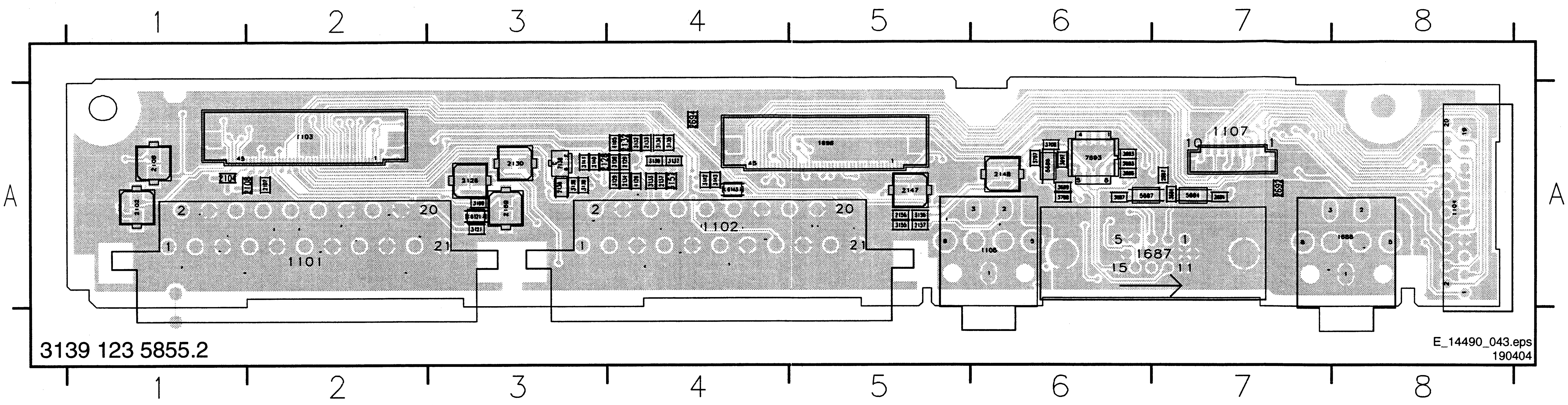
## Rear IO Panel: PCHD-IO (23”/26”)


H2
PCHD-IO
1 2 3 4 5 6 7 8 9
A B C D E
VGA CONNECTOR
1687
16 1 9 2 10 3 11 4 12 5 13 6 14 7 15 8 17
I685
D_Gnd
I682
I683
I686
I684
I688
I691
I687
I692
SDA_VGA
SCL_VGA
3702 150R
I703
6693
BAS316
I704
5686
DDC_5V
2688
100n
* EMC
2689
RES
2690
2691
3683
75R
3684
3687
5683
I710
2683
1u0
5684
2684
5687
2687
3686
0R
3681
2686
RES
2681
2704
330p
2705
330p
DDC_5V
2693
100n
(256x8)
EEPROM
WC
SCL
SDA
ADR
7693
M24C02-WMN6
I698
3693
10K
3696
10K
3697
3706 RES
3707 RES
RESERVE FOR EMC
2692
100p
2694
Gnd
3689
100R
3708
1K0
TO 1104 OF H1
KEYBOARD
LIGHT-SENSOR-SDM
IR
LED-SEL
PC-TV-LED
VS
HS
BLU_PB
GRN_Y
RED_PR
+3V3STBY
+5VSWI
UART_RX
UART_TX
PC_HD_DET-
PC_AUDIO_L
PC_AUDIO_R
I680 I681 I693 I694 I695 I709 I705 I696 I697 I690 I699 I700 I706
1698
46 47 45 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
TO 1601 OF A13
PC AUDIO IN
1688
5 4 2 3 7 8 1
I701
I702
I711
S698
S699
3698 22K
3699 22K
2698
100p
3700
47K
2699
100p
3701
47K
3139 123 5855.2
E_14490_048.eps
190404

| | |
|---|---|
| 1687 | A1 |
| 1688 | E1 |
| 1698 | B9 |
| 2681 | C6 |
| 2683 | A6 |
| 2684 | A6 |
| 2686 | C6 |
| 2687 | B6 |
| 2688 | A3 |
| 2689 | A5 |
| 2690 | A5 |
| 2691 | B5 |
| 2692 | C4 |
| 2693 | C2 |
| 2694 | C4 |
| 2698 | E3 |
| 2699 | E4 |
| 2704 | C1 |
| 2705 | C2 |
| 3681 | B5 |
| 3683 | A5 |
| 3684 | A5 |
| 3686 | B5 |
| 3687 | B5 |
| 3689 | D5 |
| 3693 | C3 |
| 3696 | C3 |
| 3697 | C4 |
| 3698 | E2 |
| 3699 | E2 |
| 3700 | E3 |
| 3701 | E4 |
| 3702 | A3 |
| 3706 | C4 |
| 3707 | D4 |
| 3708 | D6 |
| 5683 | A5 |
| 5684 | A5 |
| 5686 | A4 |
| 5687 | B5 |
| 6693 | A3 |
| 7693 | D2 |
| I680 | B9 |
| I681 | C9 |
| I682 | A2 |
| I683 | A2 |
| I684 | B2 |
| I685 | A1 |
| I686 | A2 |
| I687 | B2 |
| I688 | B2 |
| I690 | D9 |
| I691 | B2 |
| I692 | B2 |
| I693 | C9 |
| I694 | C9 |
| I695 | C9 |
| I696 | D9 |
| I697 | D9 |
| I698 | C2 |
| I699 | E9 |
| I700 | E9 |
| I701 | E2 |
| I702 | E2 |
| I703 | A3 |
| I704 | A4 |
| I705 | C9 |
| I706 | E9 |
| I709 | C9 |
| I710 | A6 |
| I711 | E1 |
| S698 | E2 |
| S699 | E2 |

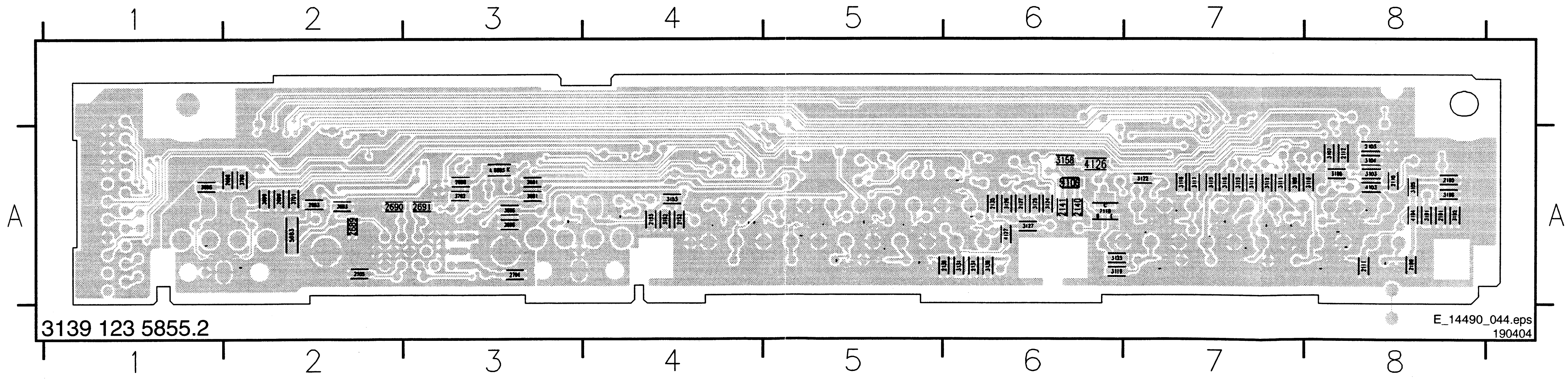
## Layout Rear IO Panel (23”/26”) (Top Side)

| | |
|---|---|
| 1101 | A2 |
| 1102 | A4 |
| 1103 | A2 |
| 1104 | A8 |
| 1105 | A6 |
| 1107 | A7 |
| 1687 | A7 |
| 1688 | A8 |
| 1698 | A5 |
| 2102 | A1 |
| 2104 | A1 |
| 2106 | A1 |
| 2107 | A2 |
| 2108 | A2 |
| 2126 | A3 |
| 2128 | A3 |
| 2129 | A4 |
| 2130 | A3 |
| 2132 | A4 |
| 2133 | A4 |
| 2134 | A4 |
| 2137 | A4 |
| 2138 | A3 |
| 2147 | A5 |
| 2148 | A6 |
| 2155 | A5 |
| 2157 | A5 |
| 2169 | A3 |
| 2684 | A7 |
| 2687 | A7 |
| 2692 | A7 |
| 2693 | A6 |
| 2694 | A4 |
| 3121 | A3 |
| 3128 | A4 |
| 3129 | A4 |
| 3132 | A4 |
| 3133 | A4 |
| 3134 | A4 |
| 3135 | A4 |
| 3136 | A4 |
| 3137 | A4 |
| 3138 | A3 |
| 3139 | A3 |
| 3140 | A3 |
| 3141 | A3 |
| 3142 | A4 |
| 3143 | A4 |
| 3155 | A5 |
| 3156 | A5 |
| 3157 | A4 |
| 3169 | A3 |
| 3684 | A7 |
| 3687 | A6 |
| 3689 | A6 |
| 3693 | A6 |
| 3696 | A6 |
| 3697 | A6 |
| 3706 | A6 |
| 3707 | A6 |
| 3708 | A6 |
| 4105 | A4 |
| 4128 | A4 |
| 5684 | A7 |
| 5686 | A6 |
| 5687 | A6 |
| 6121 | A3 |
| 6143 | A4 |
| 7138 | A3 |
| 7693 | A6 |

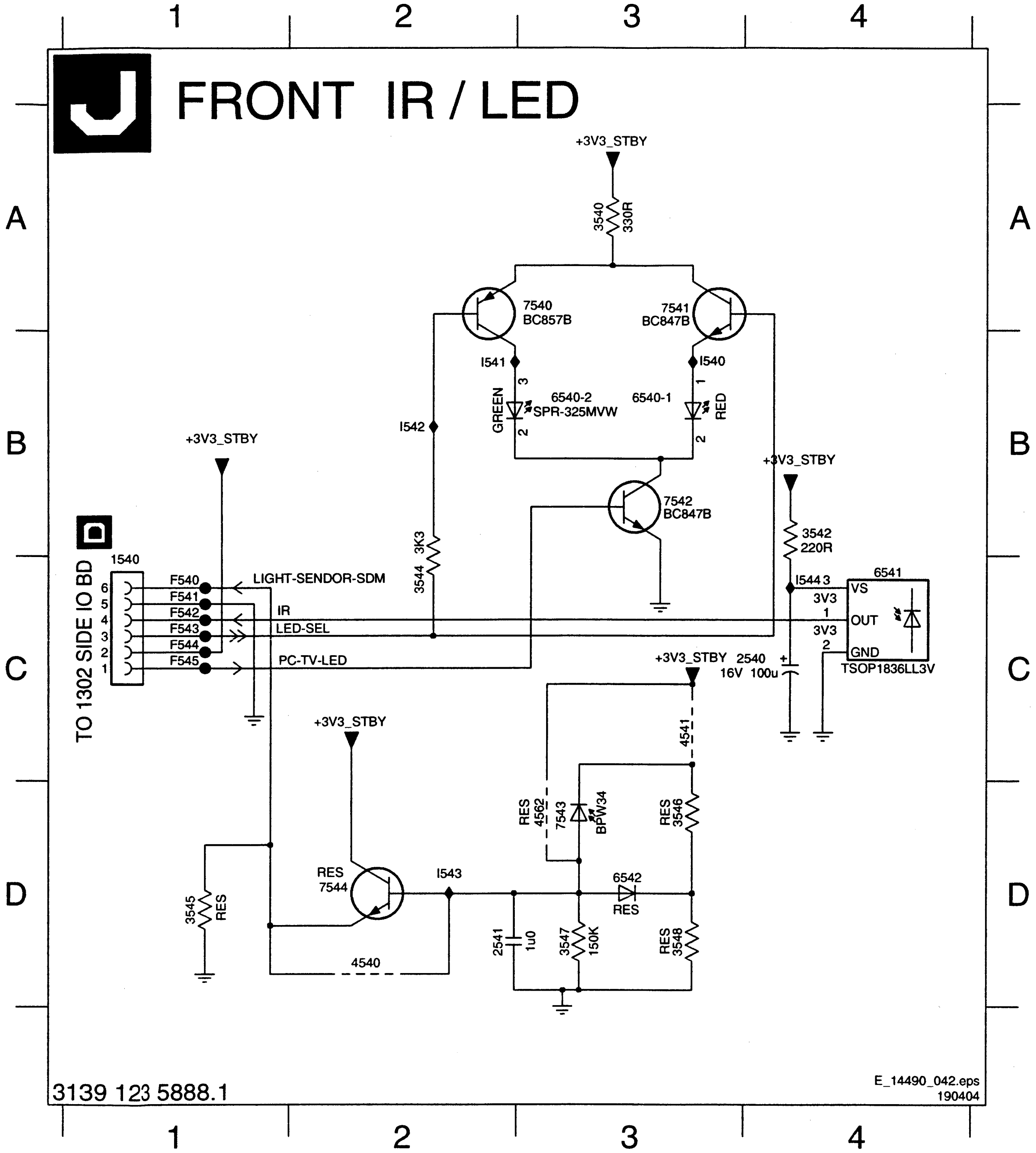

1
2
3
4
5
6
7
8
A
1103
1101
1102
1698
1107
1687
1688
1104
7693
2
20
1
21
10
3139 123 5855.2
E_14490_043.eps
190404

## Layout Rear IO Panel (23”/26”) (Bottom Side)

| | |
|---|---|
| 2101 | A8 |
| 2103 | A8 |
| 2105 | A8 |
| 2109 | A8 |
| 2110 | A8 |
| 2111 | A8 |
| 2112 | A8 |
| 2127 | A6 |
| 2131 | A6 |
| 2135 | A6 |
| 2136 | A6 |
| 2140 | A6 |
| 2141 | A6 |
| 2152 | A4 |
| 2153 | A4 |
| 2681 | A3 |
| 2683 | A2 |
| 2686 | A3 |
| 2688 | A3 |
| 2689 | A2 |
| 2690 | A2 |
| 2691 | A3 |
| 2698 | A2 |
| 2699 | A2 |
| 2704 | A3 |
| 2705 | A2 |
| 3101 | A8 |
| 3102 | A8 |
| 3103 | A8 |
| 3104 | A8 |
| 3105 | A8 |
| 3106 | A8 |
| 3107 | A8 |
| 3108 | A8 |
| 3109 | A7 |
| 3110 | A8 |
| 3111 | A7 |
| 3112 | A7 |
| 3113 | A7 |
| 3114 | A7 |
| 3115 | A7 |
| 3116 | A7 |
| 3117 | A7 |
| 3118 | A7 |
| 3119 | A6 |
| 3122 | A7 |
| 3123 | A6 |
| 3124 | A6 |
| 3125 | A6 |
| 3126 | A6 |
| 3127 | A6 |
| 3130 | A6 |
| 3131 | A6 |
| 3152 | A4 |
| 3153 | A4 |
| 3158 | A6 |
| 3681 | A3 |
| 3683 | A2 |
| 3686 | A3 |
| 3698 | A1 |
| 3699 | A2 |
| 3700 | A2 |
| 3701 | A2 |
| 3702 | A3 |
| 4103 | A8 |
| 4104 | A8 |
| 4106 | A6 |
| 4126 | A6 |
| 4127 | A6 |
| 5101 | A6 |
| 5683 | A2 |
| 6693 | A3 |
| 7119 | A6 |


1
2
3
4
5
6
7
8
A
2690
2691
3158
4126
3106
3139 123 5855.2
E_14490_044.eps
190404

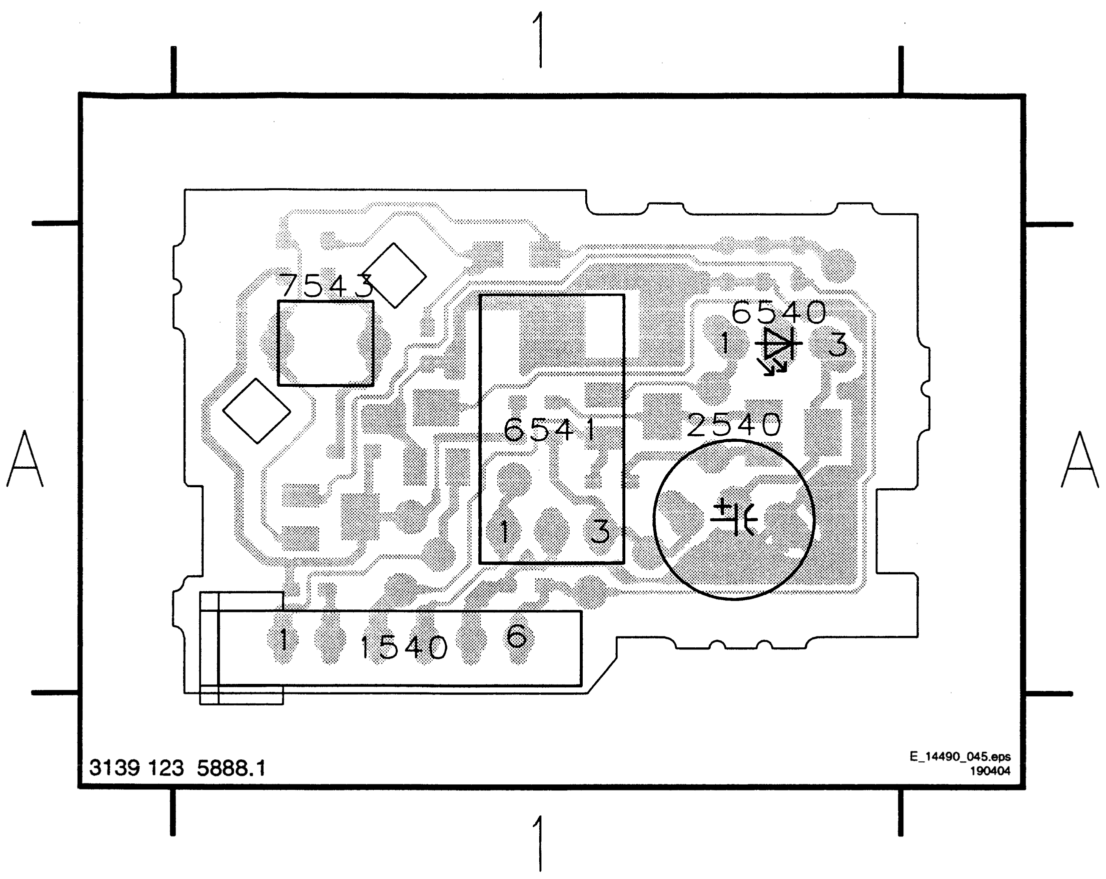
## Front IR / LED Panel


1
2
3
4
A
B
C
D
J
FRONT IR / LED
+3V3_STBY
3540
330R
7540
BC857B
7541
BC847B
I541
I540
3
1
GREEN
6540-2
SPR-325MVW
6540-1
RED
2
2
I542
+3V3_STBY
7542
BC847B
+3V3_STBY
3542
220R
3544
3K3
D
1540
TO 1302 SIDE IO BD
6
5
4
3
2
1
F540
F541
F542
F543
F544
F545
LIGHT-SENDOR-SDM
IR
LED-SEL
PC-TV-LED
I544 3
6541
VS
3V3
1
OUT
3V3
2
GND
TSOP1836LL3V
+3V3_STBY
2540
16V 100u
4541
+3V3_STBY
RES
4562
7543
BPW34
RES
3546
RES
7544
I543
6542
RES
3545
RES
4540
2541
1u0
3547
150K
RES
3548
3139 123 5888.1
E_14490_042.eps
190404

| | |
|---|---|
| 1540 | B1 |
| 2540 | C4 |
| 2541 | D2 |
| 3540 | A3 |
| 3542 | B4 |
| 3544 | C2 |
| 3545 | D1 |
| 3546 | D3 |
| 3547 | D3 |
| 3548 | D3 |
| 4540 | D2 |
| 4541 | C3 |
| 4562 | D3 |
| 6540-1 | B3 |
| 6540-2 | B3 |
| 6541 | C4 |
| 6542 | D3 |
| 7540 | A3 |
| 7541 | A3 |
| 7542 | B3 |
| 7543 | D3 |
| 7544 | D2 |
| F540 | C1 |
| F541 | C1 |
| F542 | C1 |
| F543 | C1 |
| F544 | C1 |
| F545 | C1 |
| I540 | B3 |
| I541 | B2 |
| I542 | B2 |
| I543 | D2 |
| I544 | C4 |

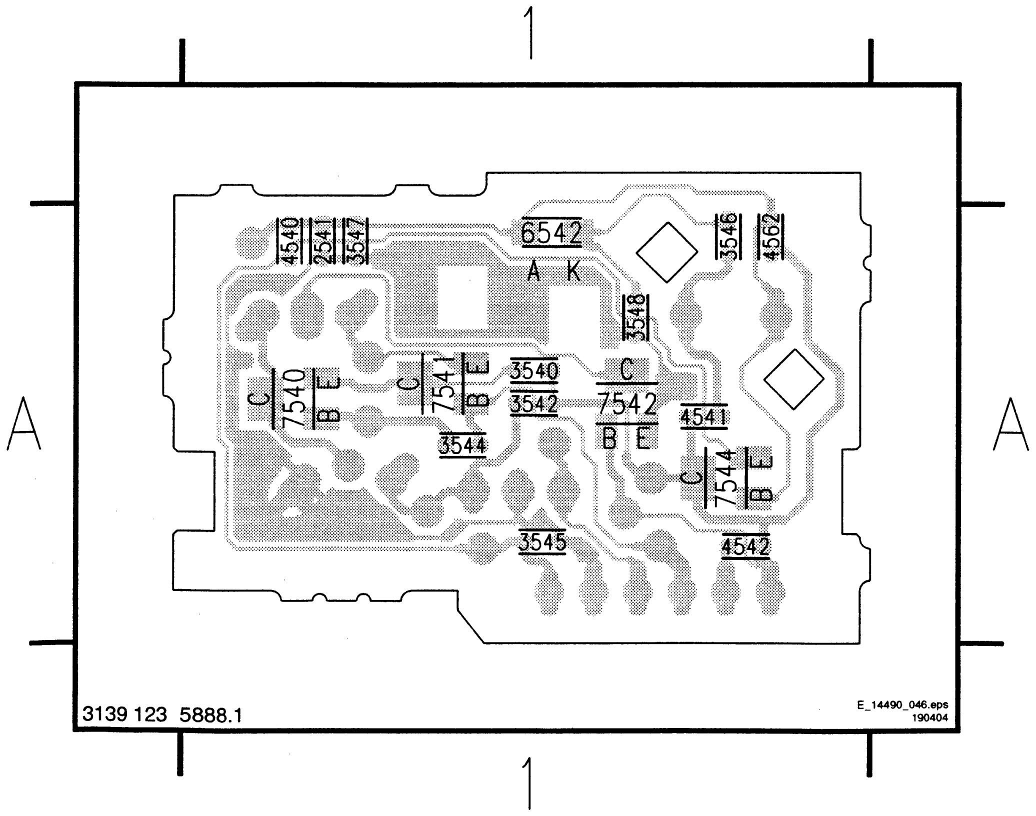
## Layout Front IR / LED Panel (Top Side)

| | |
|---|---|
| 1540 | A1 |
| 2540 | A1 |
| 6540 | A1 |
| 6541 | A1 |
| 7543 | A1 |

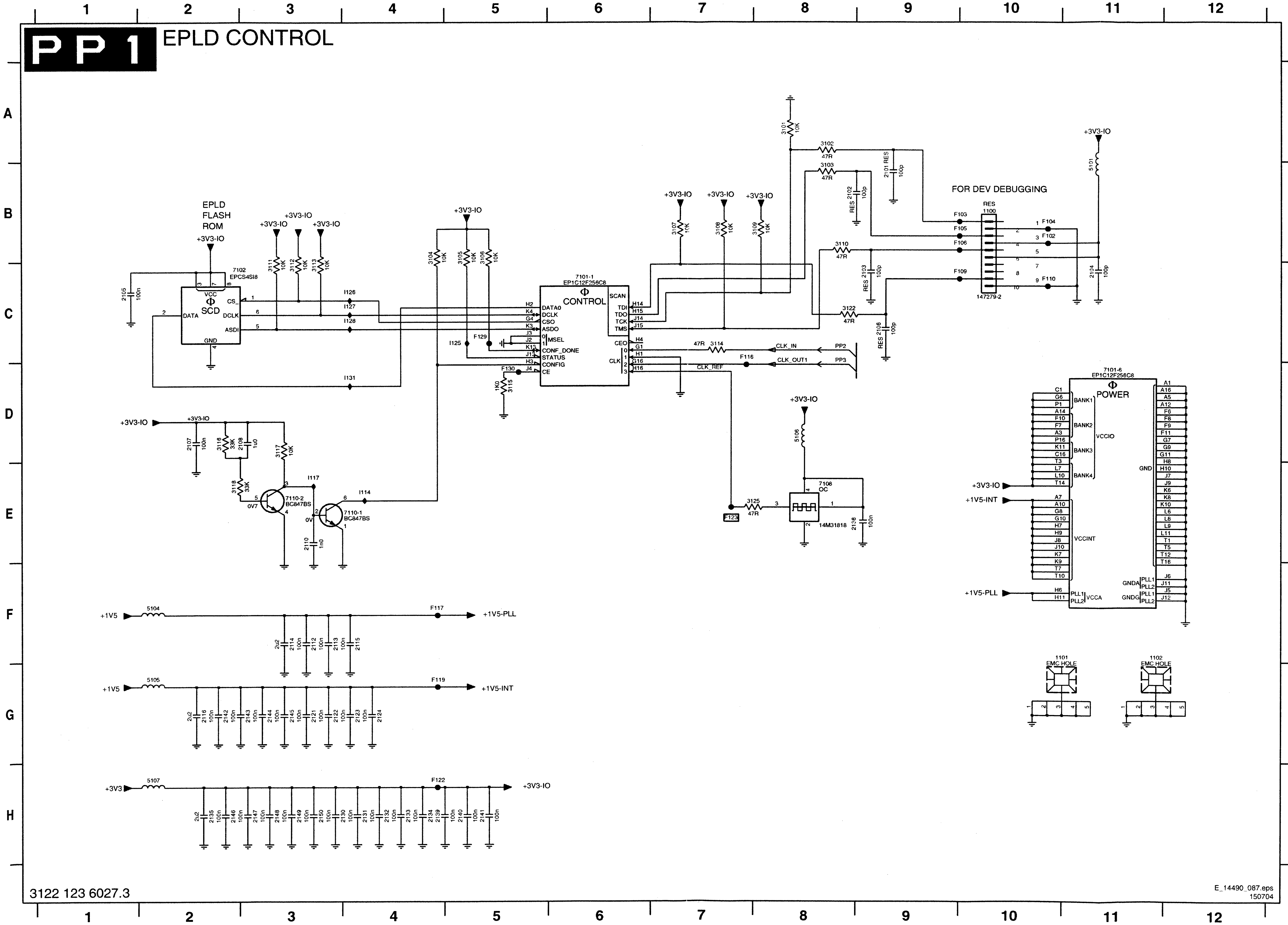

1
A
A
7543
6540
1
3
6541
2540
1
3
1
1540
6
3139 123 5888.1
E_14490_045.eps
190404
1

## Layout Front IR / LED Panel (Bottom Side)

| | |
|---|---|
| 2541 | A1 |
| 3540 | A1 |
| 3542 | A1 |
| 3544 | A1 |
| 3545 | A1 |
| 3546 | A1 |
| 3547 | A1 |
| 3548 | A1 |
| 4540 | A1 |
| 4541 | A1 |
| 4542 | A1 |
| 4562 | A1 |
| 6542 | A1 |
| 7540 | A1 |
| 7541 | A1 |
| 7542 | A1 |
| 7544 | A1 |


1
A
A
4540
2541
3547
6542
A K
3546
4562
3548
C
7540
B E
C
7541
B E
3540
3542
3544
C
7542
B E
4541
C
7544
B E
3545
4542
3139 123 5888.1
E_14490_046.eps
190404
1

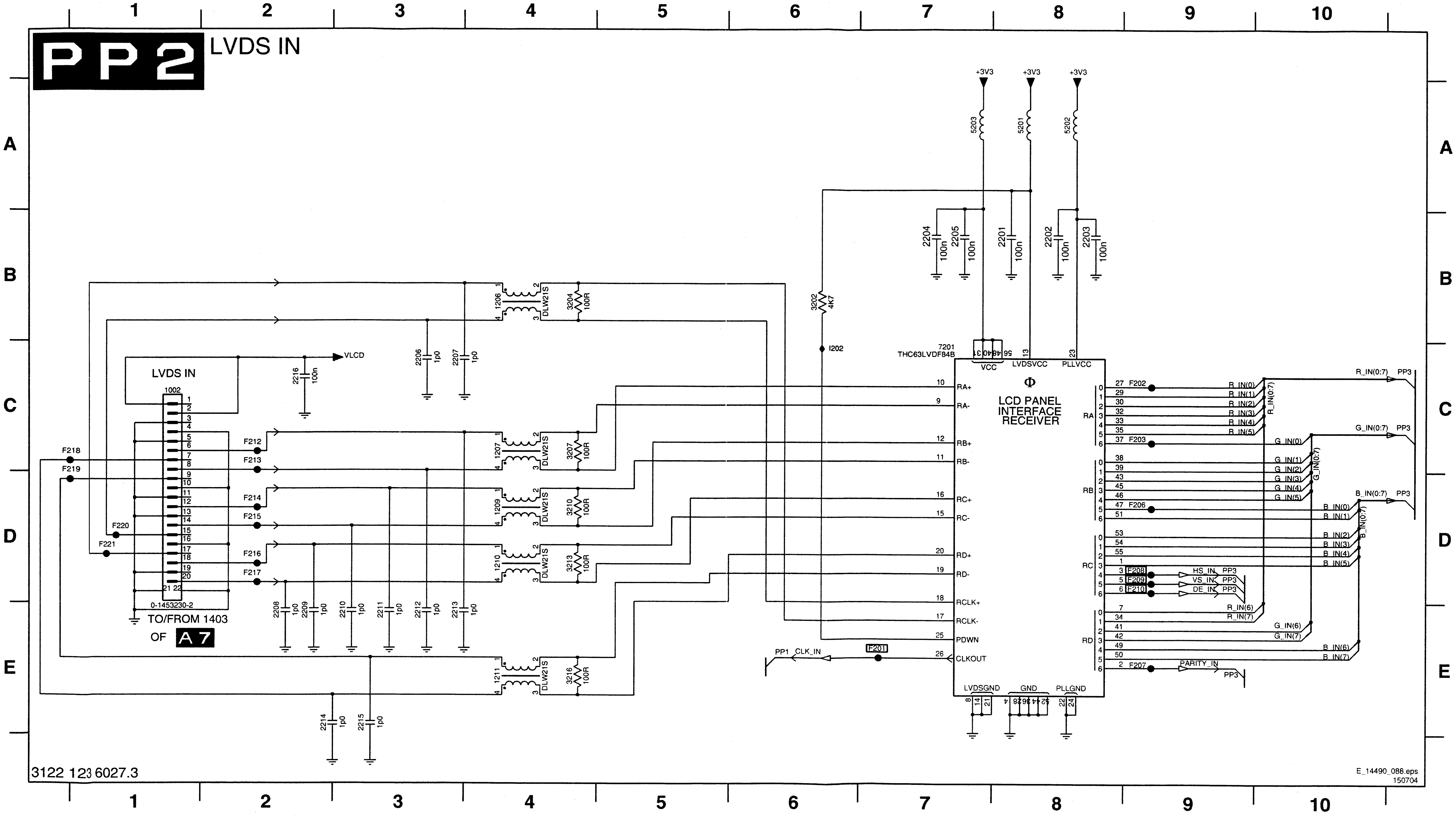
## Pixel Plus Panel: EPLD Control


PP1
EPLD CONTROL
EPLD FLASH ROM
+3V3-IO
7102 EPCS4SI8
SCD
VCC
DATA
DCLK
ASDI
CS_
GND
2105 100n
3111 10K
3112 10K
3113 10K
I126
I127
I128
I131
3104 10K
3105 10K
3106 10K
7101-1 EP1C12F256C8
CONTROL
DATA0
DCLK
CSO
ASDO
MSEL
CONF_DONE
STATUS
CONFIG
CE
SCAN
TDI
TDO
TCK
TMS
CEO
CLK
F129
I125
F130
3115 1K0
3107 10K
3108 10K
3109 10K
3101 10K
3102 47R
3103 47R
2102 100p RES
2101 RES 100p
3110 47R
2103 100p RES
3122 47R
2106 100p RES
3114 47R
CLK_IN
CLK_OUT1
CLK_REF
PP2
PP3
F116
FOR DEV DEBUGGING
RES 1100
147279-2
F103
F105
F106
F109
F104
F102
F110
5101
2104 100p
+3V3-IO
2107 100n
3116 33K
2108 1u0
3117 10K
3118 33K
7110-2 BC847BS
7110-1 BC847BS
0V7
0V
I117
I114
2110 1n0
5106
7108 OC
14M31818
3125 47R
F123
2136 100n
7101-6 EP1C12F256C8
POWER
BANK1
BANK2
BANK3
BANK4
VCCIO
VCCINT
GND
GNDA
GNDG
PLL1
PLL2
VCCA
+3V3-IO
+1V5-INT
+1V5-PLL
1101 EMC HOLE
1102 EMC HOLE
+1V5
5104
F117
+1V5-PLL
2u2
2114 100n
2112 100n
2113 100n
2115
+1V5
5105
F119
+1V5-INT
2116
2142
2143
2144
2145
2121
2122
2123
2124
+3V3
5107
F122
+3V3-IO
2135
2146
2147
2148
2149
2150
2130
2131
2132
2133
2134
2139
2140
2141
3122 123 6027.3
E_14490_087.eps
150704

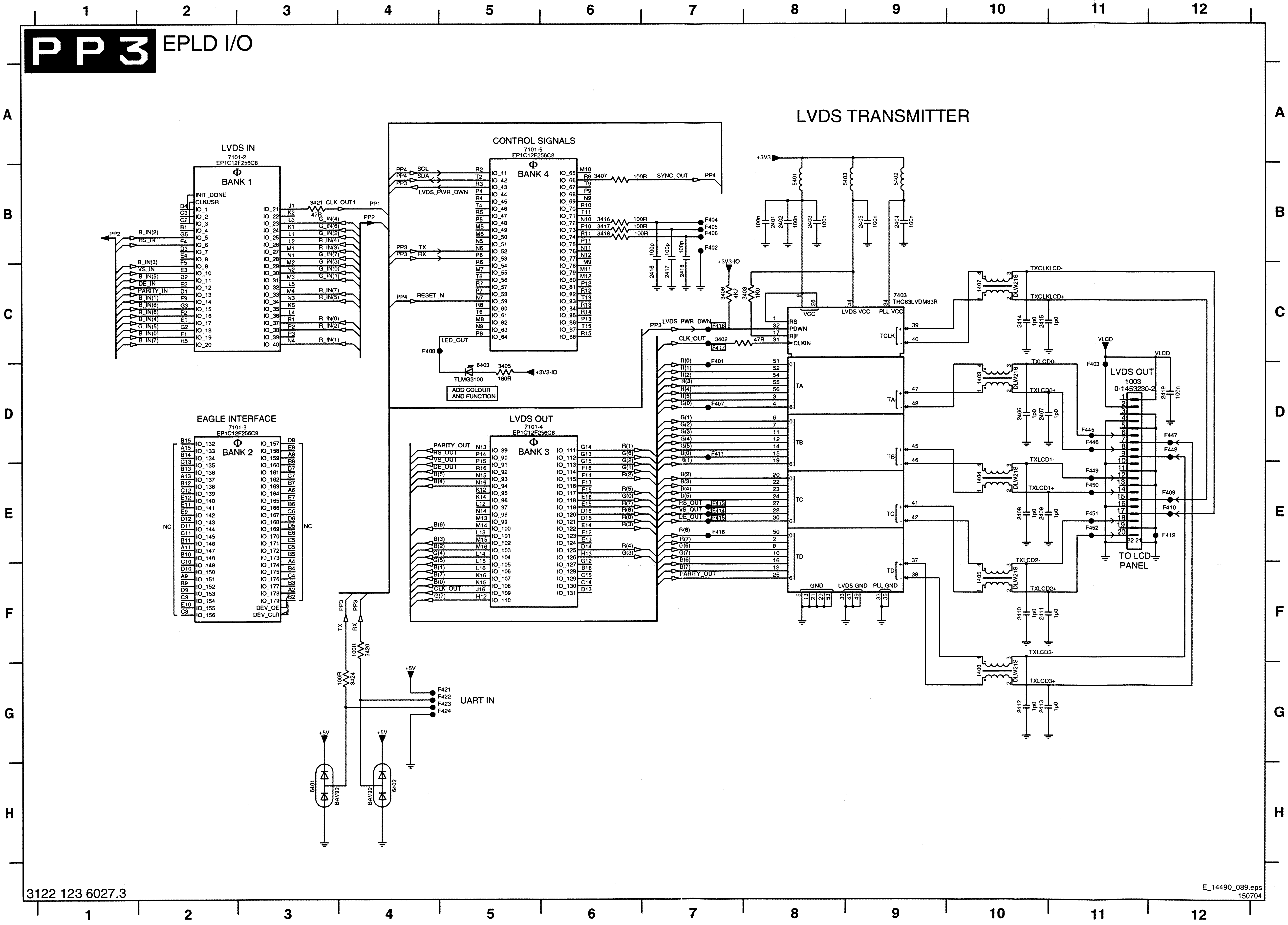
| | |
|---|---|
| 1100 | B10 |
| 1101 | F11 |
| 1102 | F11 |
| 2101 | B9 |
| 2102 | B8 |
| 2103 | C9 |
| 2104 | C11 |
| 2105 | C1 |
| 2106 | C9 |
| 2107 | D2 |
| 2108 | D3 |
| 2110 | E3 |
| 2112 | F3 |
| 2113 | F3 |
| 2114 | F3 |
| 2115 | F4 |
| 2116 | G2 |
| 2121 | G3 |
| 2122 | G3 |
| 2123 | G4 |
| 2124 | G4 |
| 2130 | H3 |
| 2131 | H4 |
| 2132 | H4 |
| 2133 | H4 |
| 2134 | H4 |
| 2135 | H2 |
| 2136 | E9 |
| 2139 | H4 |
| 2140 | H5 |
| 2141 | H5 |
| 2142 | G2 |
| 2143 | G3 |
| 2144 | G3 |
| 2145 | G3 |
| 2146 | H2 |
| 2147 | H3 |
| 2148 | H3 |
| 2149 | H3 |
| 2150 | H3 |
| 3101 | A8 |
| 3102 | A8 |
| 3103 | B8 |
| 3104 | B4 |
| 3105 | B5 |
| 3106 | B5 |
| 3107 | B7 |
| 3108 | B7 |
| 3109 | B8 |
| 3110 | B8 |
| 3111 | C3 |
| 3112 | C3 |
| 3113 | C3 |
| 3114 | C7 |
| 3115 | D5 |
| 3116 | D2 |
| 3117 | D3 |
| 3118 | E2 |
| 3122 | C8 |
| 3125 | E8 |
| 5101 | B11 |
| 5104 | F2 |
| 5105 | G2 |
| 5106 | D8 |
| 5107 | H2 |
| 7101-1 | C6 |
| 7101-6 | D11 |
| 7102 | C2 |
| 7108 | E8 |
| 7110-1 | E4 |
| 7110-2 | E3 |
| F102 | B10 |
| F103 | B10 |
| F104 | B10 |
| F105 | B10 |
| F106 | B10 |
| F109 | C10 |
| F110 | C10 |
| F116 | C7 |
| F117 | F4 |
| F119 | G4 |
| F122 | H4 |
| F123 | E7 |
| F129 | C5 |
| F130 | D5 |
| I114 | E4 |
| I117 | E3 |
| I125 | C5 |
| I126 | C4 |
| I127 | C4 |
| I128 | C4 |
| I131 | D4 |

## Pixel Plus Panel: LVDS In

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1002 C1 | 1207 C4 | 1210 D4 | 2201 B8 | 2203 B8 | 2205 B7 | 2207 C3 | 2209 E2 | 2211 E3 | 2213 E3 | 2215 E3 | 3202 B6 | 3207 C4 | 3213 D4 | 5201 A8 | 5203 A7 | F201 E7 | F203 C9 | F207 E9 | F209 D9 | F212 C2 | F214 D2 | F216 D2 | F218 C1 | F220 D1 | I202 C6 |
| 1206 B4 | 1209 D4 | 1211 E4 | 2202 B8 | 2204 B7 | 2206 C3 | 2208 E2 | 2210 E3 | 2212 E3 | 2214 E2 | 2216 C2 | 3204 B4 | 3210 D4 | 3216 E4 | 5202 A8 | 7201 C7 | F202 C9 | F206 D9 | F208 D9 | F210 D9 | F213 C2 | F215 D2 | F217 D2 | F219 D1 | F221 D1 | |

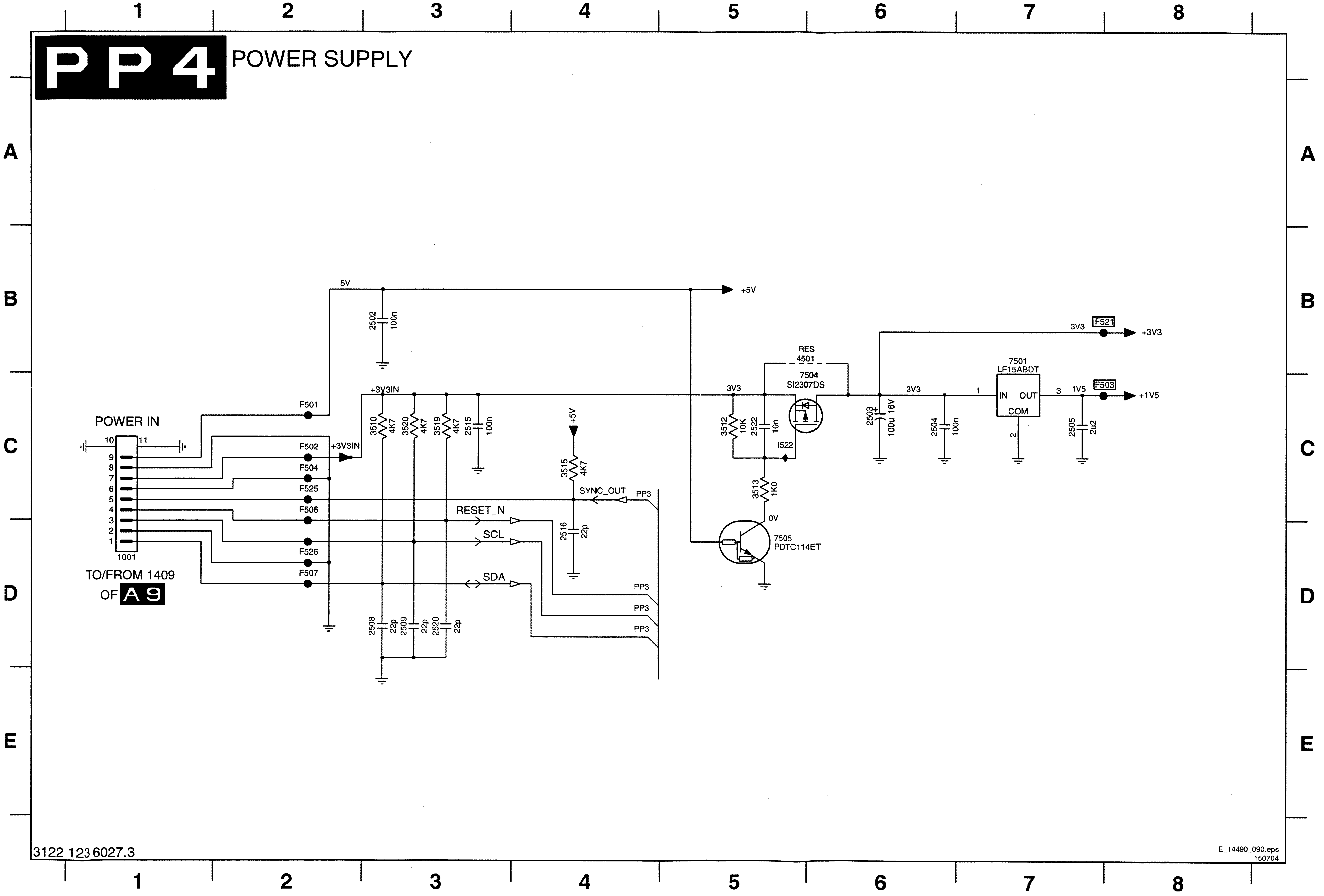

1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
PP2
LVDS IN
+3V3
+3V3
+3V3
5203
5201
5202
2204 100n
2205 100n
2201 100n
2202 100n
2203 100n
3202 4K7
I202
7201
THC63LVDF84B
31 40 48 56 13 23
VCC
LVDSVCC
PLLVCC
Φ
LCD PANEL INTERFACE RECEIVER
10 RA+
9 RA-
12 RB+
11 RB-
16 RC+
15 RC-
20 RD+
19 RD-
18 RCLK+
17 RCLK-
25 PDWN
26 CLKOUT
F201
PP1 CLK_IN
LVDSGND
GND
PLLGND
8 14 21
4 28 36 44 52
22 24
RA
RB
RC
RD
27 F202
29
30
32
33
35
37 F203
38
39
43
45
46
47 F206
51
53
54
55
1
3 F208
5 F209
6 F210
7
34
41
42
49
50
2 F207
R_IN(0)
R_IN(1)
R_IN(2)
R_IN(3)
R_IN(4)
R_IN(5)
R_IN(6)
R_IN(7)
R_IN(0:7)
R_IN(0:7) PP3
G_IN(0)
G_IN(1)
G_IN(2)
G_IN(3)
G_IN(4)
G_IN(5)
G_IN(6)
G_IN(7)
G_IN(0:7)
G_IN(0:7) PP3
B_IN(0)
B_IN(1)
B_IN(2)
B_IN(3)
B_IN(4)
B_IN(5)
B_IN(6)
B_IN(7)
B_IN(0:7)
B_IN(0:7) PP3
HS_IN PP3
VS_IN PP3
DE_IN PP3
PARITY_IN PP3
1206 DLW21S
3204 100R
1207 DLW21S
3207 100R
1209 DLW21S
3210 100R
1210 DLW21S
3213 100R
1211 DLW21S
3216 100R
2206 1p0
2207 1p0
2216 100n
VLCD
LVDS IN
1002
0-1453230-2
TO/FROM 1403
OF A7
F212
F213
F214
F215
F216
F217
F218
F219
F220
F221
2208 1p0
2209 1p0
2210 1p0
2211 1p0
2212 1p0
2213 1p0
2214 1p0
2215 1p0
3122 123 6027.3
E_14490_088.eps
150704

## Pixel Plus Panel: EPLD I/O


PP3
EPLD I/O
LVDS TRANSMITTER
LVDS IN
7101-2
EP1C12F256C8
BANK 1
CONTROL SIGNALS
7101-5
EP1C12F256C8
BANK 4
EAGLE INTERFACE
7101-3
EP1C12F256C8
BANK 2
LVDS OUT
7101-4
EP1C12F256C8
BANK 3
7403
THC63LVDM83R
LVDS OUT
1003
0-1453230-2
TO LCD PANEL
UART IN
ADD COLOUR AND FUNCTION
TLMG3100
BAV99
+3V3
+3V3-IO
+5V
VLCD
LVDS_PWR_DWN
CLK_OUT
SYNC_OUT
RESET_N
PARITY_OUT
TXCLKLCD-
TXCLKLCD+
TXLCD0-
TXLCD0+
TXLCD1-
TXLCD1+
TXLCD2-
TXLCD2+
TXLCD3-
TXLCD3+
DLW21S
NC
3122 123 6027.3
E_14490_089.eps
150704

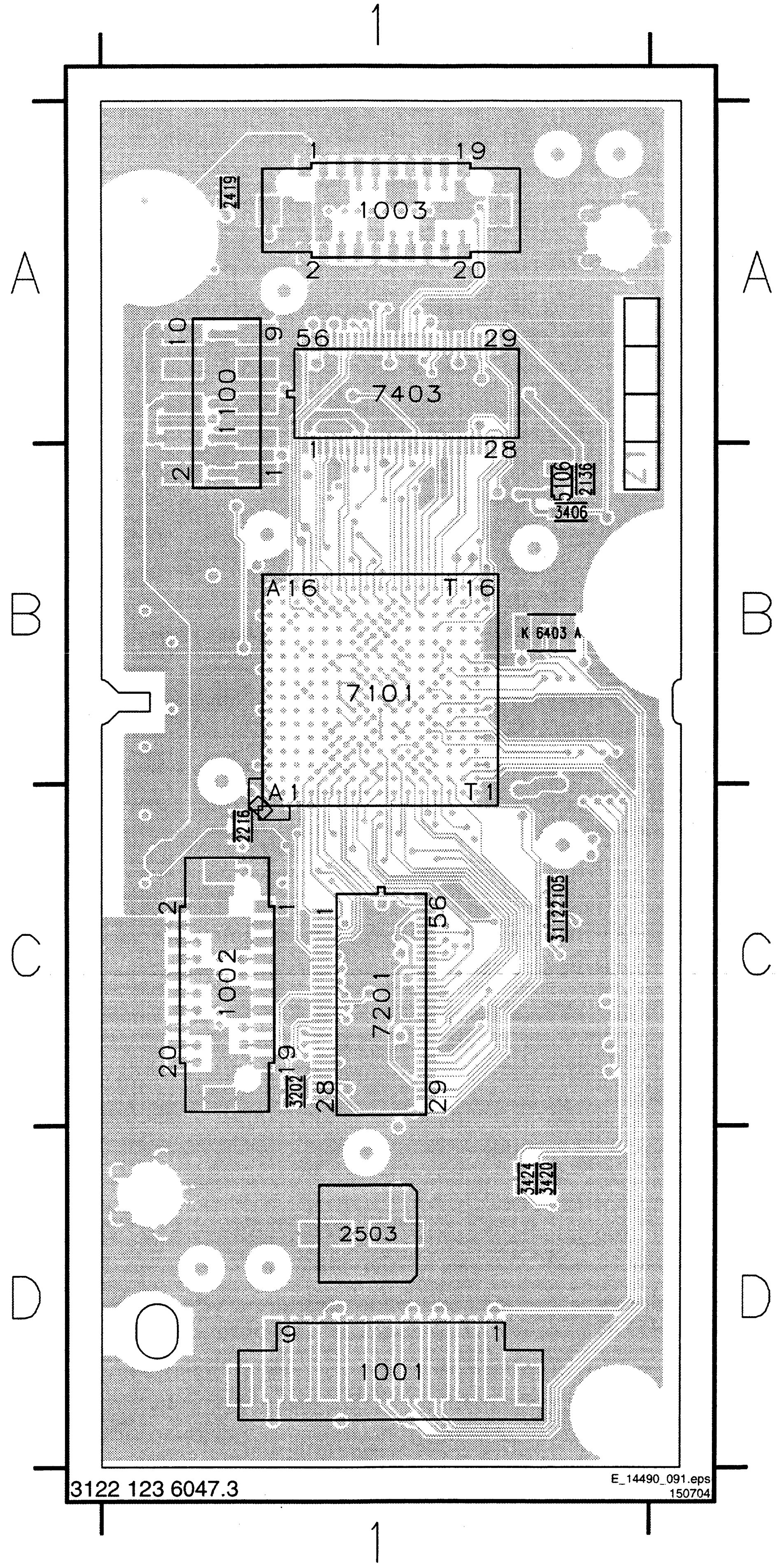
| | |
|---|---|
| 1003 | D11 |
| 1403 | D10 |
| 1404 | E10 |
| 1405 | F10 |
| 1406 | G10 |
| 1407 | C10 |
| 2401 | B8 |
| 2402 | B8 |
| 2403 | B8 |
| 2404 | B9 |
| 2405 | B9 |
| 2406 | D10 |
| 2407 | D10 |
| 2408 | E10 |
| 2409 | E10 |
| 2410 | F10 |
| 2411 | F10 |
| 2412 | G10 |
| 2413 | G10 |
| 2414 | C10 |
| 2415 | C10 |
| 2416 | C7 |
| 2417 | C7 |
| 2418 | C7 |
| 2419 | D12 |
| 3402 | C7 |
| 3403 | C8 |
| 3405 | D5 |
| 3406 | C7 |
| 3407 | B6 |
| 3416 | B6 |
| 3417 | B6 |
| 3418 | B6 |
| 3420 | F4 |
| 3421 | B3 |
| 3424 | G4 |
| 5401 | B8 |
| 5402 | B9 |
| 5403 | B9 |
| 6401 | H3 |
| 6402 | H4 |
| 6403 | D5 |
| 7101-2 | A3 |
| 7101-3 | D3 |
| 7101-4 | D5 |
| 7101-5 | A5 |
| 7403 | C9 |
| F401 | D7 |
| F402 | B7 |
| F403 | D11 |
| F404 | B7 |
| F405 | B7 |
| F406 | B7 |
| F407 | D7 |
| F408 | C4 |
| F409 | E12 |
| F410 | E12 |
| F411 | D7 |
| F412 | E12 |
| F413 | E7 |
| F414 | E7 |
| F415 | E7 |
| F416 | E7 |
| F417 | C7 |
| F418 | C7 |
| F421 | G5 |
| F422 | G5 |
| F423 | G5 |
| F424 | G5 |
| F445 | D11 |
| F446 | D11 |
| F447 | D12 |
| F448 | D12 |
| F449 | E11 |
| F450 | E11 |
| F451 | E11 |
| F452 | E11 |

## Pixel Plus Panel: Power Supply


PP4
POWER SUPPLY
POWER IN
10
11
9
8
7
6
5
4
3
2
1
1001
TO/FROM 1409
OF A9
F501
F502
+3V3IN
F504
F525
F506
F526
F507
5V
2502
100n
+3V3IN
3510
4K7
3520
4K7
3519
4K7
2515
100n
2508
22p
2509
22p
2520
22p
+5V
3515
4K7
SYNC_OUT
PP3
RESET_N
SCL
SDA
2516
22p
PP3
PP3
PP3
+5V
3V3
RES
4501
7504
SI2307DS
3512
10K
2522
10n
I522
3513
1K0
0V
7505
PDTC114ET
3V3
F521
+3V3
2503
100u 16V
3V3
2504
100n
7501
LF15ABDT
1
IN
OUT
COM
2
3
1V5
F503
+1V5
2505
2u2
A
B
C
D
E
1
2
3
4
5
6
7
8
3122 123 6027.3
E_14490_090.eps
150704

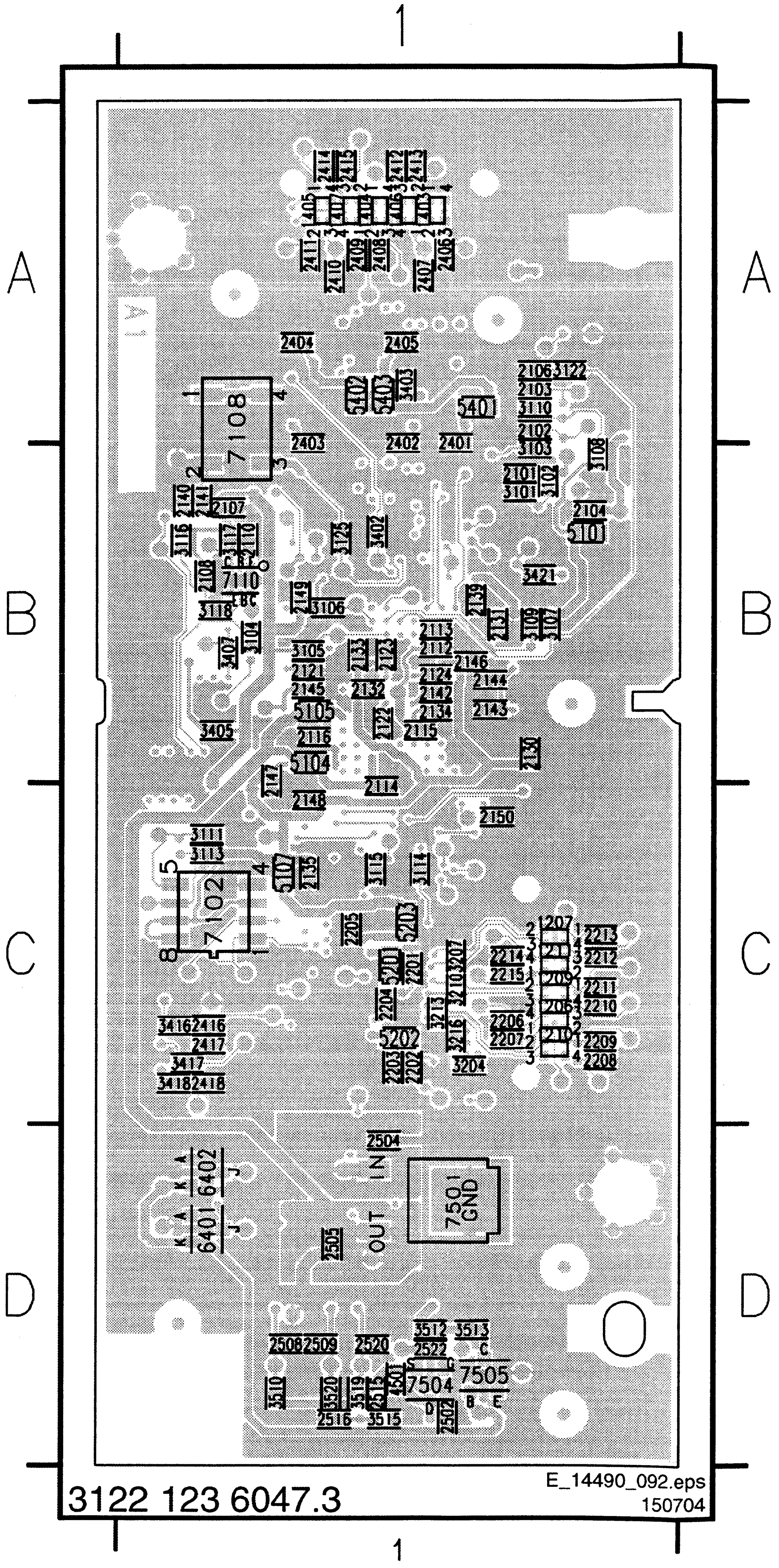
| | |
|---|---|
| 1001 | D1 |
| 2502 | B3 |
| 2503 | C6 |
| 2504 | C6 |
| 2505 | C7 |
| 2508 | D3 |
| 2509 | D3 |
| 2515 | C3 |
| 2516 | D4 |
| 2520 | D3 |
| 2522 | C5 |
| 3510 | C3 |
| 3512 | C5 |
| 3513 | C5 |
| 3515 | C4 |
| 3519 | C3 |
| 3520 | C3 |
| 4501 | B5 |
| 7501 | B7 |
| 7504 | C6 |
| 7505 | D5 |
| F501 | C2 |
| F502 | C2 |
| F503 | C7 |
| F504 | C2 |
| F505 | C2 |
| F506 | C2 |
| F507 | D2 |
| F521 | B7 |
| F525 | C2 |
| F526 | D2 |
| I522 | C5 |

## Layout Pixel Plus Panel (Top Side)


1
A
B
C
D
1003
1100
7403
7101
1002
7201
2503
1001
3122 123 6047.3
E_14490_091.eps
150704

| | |
|---|---|
| 1001 | D1 |
| 1002 | C1 |
| 1003 | A1 |
| 1100 | A1 |
| 2105 | C1 |
| 2136 | B1 |
| 2216 | C1 |
| 2419 | A1 |
| 2503 | D1 |
| 3112 | C1 |
| 3202 | C1 |
| 3406 | B1 |
| 3420 | D1 |
| 3424 | D1 |
| 5106 | B1 |
| 6403 | B1 |
| 7101 | B1 |
| 7201 | C1 |
| 7403 | A1 |

## Layout Pixel Plus Panel (Bottom Side)


1
A
B
C
D
7108
7102
7501 GND
7504
7505
IN
OUT
3122 123 6047.3
E_14490_092.eps
150704

| | |
|---|---|
| 1206 | C1 |
| 1207 | C1 |
| 1209 | C1 |
| 1210 | C1 |
| 1211 | C1 |
| 1403 | A1 |
| 1404 | A1 |
| 1405 | A1 |
| 1406 | A1 |
| 1407 | A1 |
| 2101 | B1 |
| 2102 | A1 |
| 2103 | A1 |
| 2104 | B1 |
| 2106 | A1 |
| 2107 | B1 |
| 2108 | B1 |
| 2110 | B1 |
| 2112 | B1 |
| 2113 | B1 |
| 2114 | C1 |
| 2115 | B1 |
| 2116 | B1 |
| 2121 | B1 |
| 2122 | B1 |
| 2123 | B1 |
| 2124 | B1 |
| 2130 | B1 |
| 2131 | B1 |
| 2132 | B1 |
| 2133 | B1 |
| 2134 | B1 |
| 2135 | C1 |
| 2139 | B1 |
| 2140 | B1 |
| 2141 | B1 |
| 2142 | B1 |
| 2143 | B1 |
| 2144 | B1 |
| 2145 | B1 |
| 2146 | B1 |
| 2147 | B1 |
| 2148 | C1 |
| 2149 | B1 |
| 2150 | C1 |
| 2201 | C1 |
| 2202 | C1 |
| 2203 | C1 |
| 2204 | C1 |
| 2205 | C1 |
| 2206 | C1 |
| 2207 | C1 |
| 2208 | C1 |
| 2209 | C1 |
| 2210 | C1 |
| 2211 | C1 |
| 2212 | C1 |
| 2213 | C1 |
| 2214 | C1 |
| 2215 | C1 |
| 2401 | B1 |
| 2402 | B1 |
| 2403 | B1 |
| 2404 | A1 |
| 2405 | A1 |
| 2406 | A1 |
| 2407 | A1 |
| 2408 | A1 |
| 2409 | A1 |
| 2410 | A1 |
| 2411 | A1 |
| 2412 | A1 |
| 2413 | A1 |
| 2414 | A1 |
| 2415 | A1 |
| 2416 | C1 |
| 2417 | C1 |
| 2418 | C1 |
| 2502 | D1 |
| 2504 | D1 |
| 2505 | D1 |
| 2508 | D1 |
| 2509 | D1 |
| 2515 | D1 |
| 2516 | D1 |
| 2520 | D1 |
| 2522 | D1 |
| 3101 | B1 |
| 3102 | B1 |
| 3103 | B1 |
| 3104 | B1 |
| 3105 | B1 |
| 3106 | B1 |
| 3107 | B1 |
| 3108 | B1 |
| 3109 | B1 |
| 3110 | A1 |
| 3111 | C1 |
| 3113 | C1 |
| 3114 | C1 |
| 3115 | C1 |
| 3116 | B1 |
| 3117 | B1 |
| 3118 | B1 |
| 3122 | A1 |
| 3125 | B1 |
| 3204 | C1 |
| 3207 | C1 |
| 3210 | C1 |
| 3213 | C1 |
| 3216 | C1 |
| 3402 | B1 |
| 3403 | A1 |
| 3405 | B1 |
| 3407 | B1 |
| 3416 | C1 |
| 3417 | C1 |
| 3418 | C1 |
| 3421 | B1 |
| 3510 | D1 |
| 3512 | D1 |
| 3513 | D1 |
| 3515 | D1 |
| 3519 | D1 |
| 3520 | D1 |
| 4501 | D1 |
| 5101 | B1 |
| 5104 | B1 |
| 5105 | B1 |
| 5107 | C1 |
| 5201 | C1 |
| 5202 | C1 |
| 5203 | C1 |
| 5401 | A1 |
| 5402 | A1 |
| 5403 | A1 |
| 6401 | D1 |
| 6402 | D1 |
| 7102 | C1 |
| 7108 | A1 |
| 7110 | B1 |
| 7501 | D1 |
| 7504 | D1 |
| 7505 | D1 |

**Personal Notes:**

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200204

# 8. Alignments

General: The Service Default Mode (SDM) and Service Alignment Mode (SAM) are described in chapter 5. Menu navigation is done with the cursor Up, Down, Left or Right keys of the remote control transmitter.

## 8.1 General Alignment Conditions

Perform all electrical adjustments under the following conditions:
Mains voltage and frequency: 100-240 V / 50/60 Hz.
Allow the set to warm up for approximately 10 minutes.
Test probe: Ri > 10 M ohm; Ci < 2.5 pF.

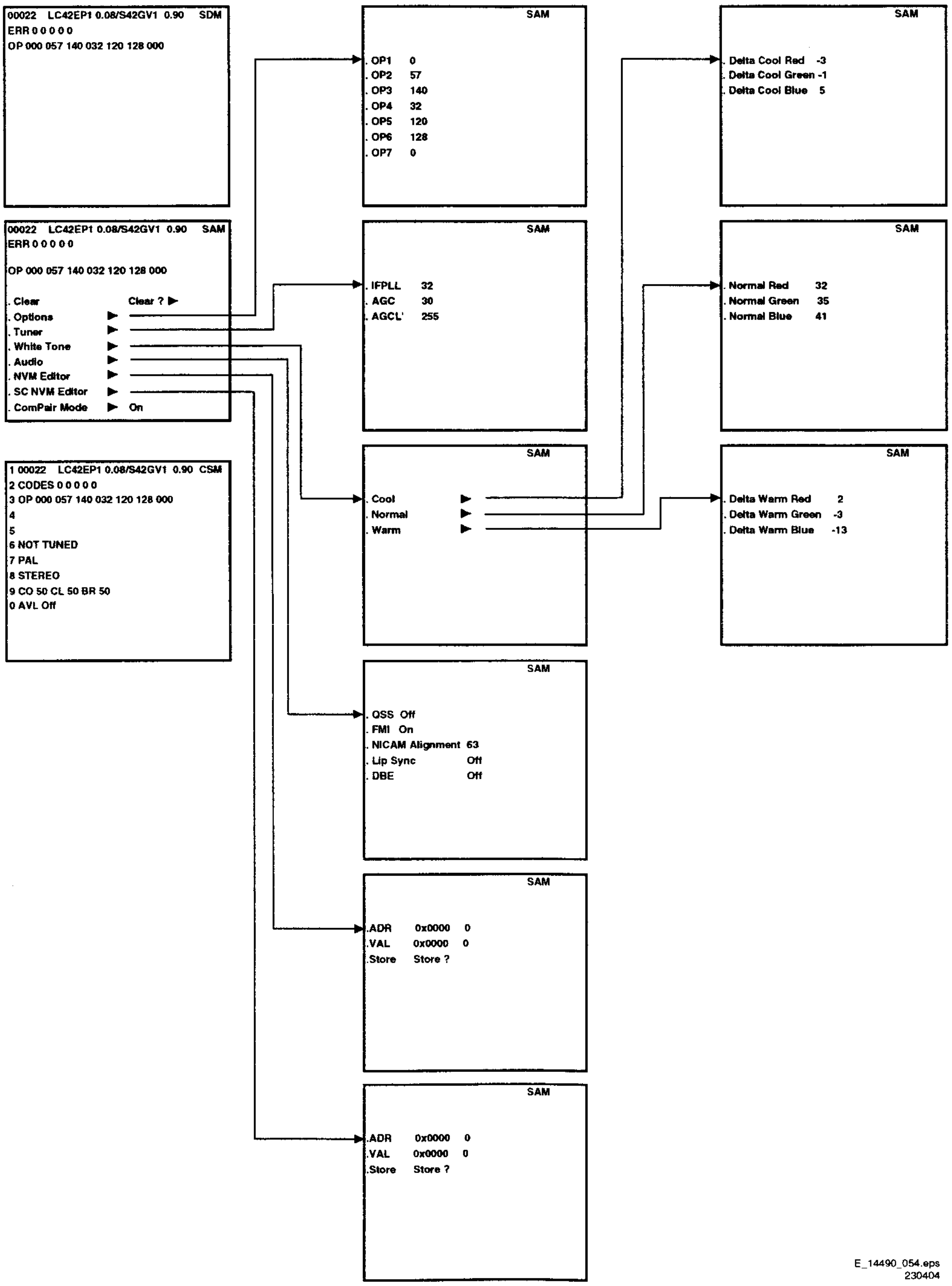
## 8.2 Hardware Alignments

There are no hardware alignments foreseen for the LCD-TV.

## 8.3 Software Alignments

With the software alignments of the Service Alignment Mode (SAM) the geometry, white tone and tuner (IF) can be aligned. To store the data: Use the RC button Menu to switch to the main menu and next, switch to 'Stand-by' mode.

### 8.3.1 SAM Menu



```
00022   LC42EP1 0.08/S42GV1  0.90    SDM
ERR 0 0 0 0 0
OP 000 057 140 032 120 128 000
```

```
00022   LC42EP1 0.08/S42GV1  0.90    SAM
ERR 0 0 0 0 0

OP 000 057 140 032 120 128 000

. Clear                Clear ? ▶
. Options          ▶
. Tuner            ▶
. White Tone       ▶
. Audio            ▶
. NVM Editor       ▶
. SC NVM Editor    ▶
. ComPair Mode     ▶   On
```

```
1 00022   LC42EP1 0.08/S42GV1  0.90  CSM
2 CODES 0 0 0 0 0
3 OP 000 057 140 032 120 128 000
4
5
6 NOT TUNED
7 PAL
8 STEREO
9 CO 50 CL 50 BR 50
0 AVL Off
```

```
                          SAM

. OP1     0
. OP2     57
. OP3     140
. OP4     32
. OP5     120
. OP6     128
. OP7     0
```

```
                          SAM

. IFPLL    32
. AGC      30
. AGCL'    255
```

```
                          SAM

. Cool              ▶
. Normal            ▶
. Warm              ▶
```

```
                          SAM

. QSS  Off
. FMI  On
. NICAM Alignment  63
. Lip Sync         Off
. DBE              Off
```

```
                          SAM

.ADR      0x0000   0
.VAL      0x0000   0
.Store    Store ?
```

```
                          SAM

.ADR      0x0000   0
.VAL      0x0000   0
.Store    Store ?
```

```
                          SAM

. Delta Cool Red   -3
. Delta Cool Green -1
. Delta Cool Blue   5
```

```
                          SAM

. Normal Red      32
. Normal Green    35
. Normal Blue     41
```

```
                          SAM

. Delta Warm Red      2
. Delta Warm Green   -3
. Delta Warm Blue   -13
```

Figure 8-1 SAM Menu

### 8.3.2 White Tone

In the White Tone sub menu the colour values for the colour temperature values can be changed.
The colour temperature mode (Normal, Delta Cool, Delta Warm) or the colour (R, G, B) can be selected with the Right/ Left cursor keys. The mode or value can be changed with the Up/Down cursor keys.
First the values for the Normal colour temperature should be selected. Range: 0-255, 128 represent the middle of the value (no offset difference). Then the offset values for the Delta Cool and Delta Warm mode can be selected. Note that the alignment values are non-linear. The range is: -50 to +50, 0 represents the middle value, (no offset difference).

Input signal strength: >=10 mV rms (80 dBμV) terminal voltage.
Input injection point: Aerial input.

***Alignment Method***

*Initial Set-up*

- 12 minutes soaking time before carrying out Colour Temp alignment.
- Incredible Picture/Contrast+ and Active Control & Light Sensor must be switched Off for proper tracking.
- Set all colour temperature settings to their initial values, i.e. Red=135; Green=128; Blue=133.
- The offset values for Cool & Warm should be preloaded into NVM.
- The alignment is done for Normal only.

*Method of alignments*

1. Place the colour sensor of the meter at the centre of the screen with standard orientation (at 0 degree orientation).
2. Set the meter in (T, delta UV, Y) mode.
3. Set Brightness and Colour to nominal (Factory mode, Brightness 60).
4. Set Colour temp to normal.
5. Set Contrast to make the light output Y on the meter 250 nit +/-10%.
6. Set Green=128.
7. Adjust Red and Blue to bring delta UV and T to the value as in the table.
8. Repeat the procedure if necessary to obtain the values as in the table.

***Expected Results***

- Measured parameters: Refer to table,
- Specifications: Refer to table,
- Units of measurement: Kelvin.

**Table 8-1 Colour temperatures**

| Colour temp. | NORMAL | | COOL | | WARM | |
|---|---|---|---|---|---|---|
| | T (K) | ΔUV | T (K) | ΔUV | T (K) | ΔUV |
| EUROPE | 8500 | -003 | 11500 | -005 | 7000 | -005 |
| Tolerance | +/-10% | +/-003 | +/-10% | +/-003 | +/-10% | +/-003 |

### 8.3.3 Tuner Adjustment

AGC (RF AGC Take Over Point)
Set pattern generator (e.g. PM5580) with colour bar pattern and connect to aerial input with RF signal amplitude - 10mV and set frequency for PAL/SECAM to 475.25 MHz. For France select the L'-signal.

- Activate the SAM-menu. Go to the sub-menu Tuner, select the sub-menu option AFC Window and adjust the value to 100kHz.
- Select the AGC sub-menu.
- Connect a DC multi-meter to F306 pin1 of the tuner.
- Adjust the AGC until the voltage at pin 1 of the tuner is 3.3 Volts +0.5 / -1.0.
- The value can be incremented or decremented by pressing the right/left Menu-button on the RC.
- Switch the set to standby to store the data.

### 8.3.4 Grey Scale Adjustment

***SDTV Grey Scale Adjustment***

*Equipment and setting*

- E.g. Fluke 54200 or Philips PM5580.
- 100% "8-step grey scale" pattern.

*Alignment Method*

- Switch to TV mode,
- Press the MUTE button on RC,
- Set SMART PICTURE to SOFT mode,
- Activate the auto color function by pressing key-sequence: "INFO - MUTE - MUTE - MUTE - INFO - MENU - INFO"

*Expected Results*

- Visual check if the 8 Grey levels are correct.

***Analog PC Grey Scale Adjustment***

*Equipment and setting*

- Quantum Data 802B.
- PC input signal, with 64 levels Grey scale pattern, 1024x768 @ 60Hz (Format= 81:DMT1060, Pattern= 123:Grey 64).
- PC input at D-sub VGA connector.

*Alignment Method*

- Switch to "PC" mode.
- Press the MUTE button on RC.
- Set BRIGHTNESS and CONTRAST to nominal "50".
- Activate the auto color function by pressing key-sequence: "INFO - MUTE - MUTE - MUTE - INFO - MENU - INFO".

*Expected Results*

- Visual check if the 64 Grey levels are correct.

***HD Grey Scale Adjustment***

*Equipment and setting*

- Quantum Data 802B.
- HD input signal, Top half 100% color bar and bottom half Grey scale pattern,1920x1080i@60Hz YPbPr (Format= 1080i30, Pattern= HDBar100).
- HD input at D-sub VGA connector.

*Alignment Method*

- Switch to HD mode.
- Press the MUTE button on RC.
- Activate the auto color function by pressing key-sequence: "INFO - MUTE - MUTE - MUTE - INFO - MENU - INFO".

*Expected Results*

- Visual check if Color bar tint and Grey scale is correct.

### 8.3.5 Sound

No adjustments needed for sound.

The default values for the audio alignments are:

- QSS: On
- FMI: Off
- NICAM Alignment: 63
- Lip Sync: Off
- DBE: Off

### 8.3.6 Options

Options are used to control the presence/absence of certain features and hardware.

***How to change an Option Byte***

An Option Byte represents a number of different options. Changing these bytes directly makes it possible to set all options very fast. All options are controlled via seven option bytes. Select the option byte (OP1.. OP7) with the Menu Up/Down keys, and enter the new value.

Leaving the OPTION submenu saves the changes in the Option Byte settings. Some changes will only take effect after the set has been switched “off” and “on” with the AC power switch (cold start).

**Note:** The option values mentioned in the table below are subject to change.

**Table 8-2 Option values per model**

| | **17PF9946/12** | | **23PF9946/12** | | **26PF9946/12** | |
|---|---|---|---|---|---|---|
| **Option Byte** | **Total Dec Values** | **Total Hex Values** | **Total Dec Values** | **Total Hex Values** | **Total Dec Values** | **Total Hex Values** |
| OP1 | 154 | 9A | 154 | 9A | 154 | 9A |
| OP2 | 21 | 15 | 21 | 15 | 21 | 15 |
| OP3 | 14 | 0E | 14 | 0E | 14 | 0E |
| OP4 | 17 | 11 | 17 | 11 | 17 | 11 |
| OP5 | 252 | FC | 252 | FC | 252 | FC |
| OP6 | 27 | 1B | 27 | 1B | 27 | 1B |
| OP7 | 3 | 03 | 3 | 03 | 3 | 03 |

| | **23PF9956/12** | | **26PF9956/12** | |
|---|---|---|---|---|
| **Option Byte** | **Total Dec Values** | **Total Hex Values** | **Total Dec Values** | **Total Hex Values** |
| OP1 | 154 | 9A | 154 | 9A |
| OP2 | 21 | 15 | 21 | 15 |
| OP3 | 14 | 0E | 14 | 0E |
| OP4 | 17 | 11 | 17 | 11 |
| OP5 | 252 | FC | 252 | FC |
| OP6 | 27 | 1B | 27 | 1B |
| OP7 | 3 | 03 | 3 | 03 |

# 9. Circuit Descriptions, Abbreviation List, and IC Data Sheets

Index of this chapter

1. Introduction
2. Block Diagram
3. Power Supply
4. Input/Output
5. Tuner and IF
6. Video: TV Part
7. Video: Scaler Part
8. Audio Processing
9. Control
10. LCD Display
11. Abbreviation List
12. IC Data Sheets

## 9.1 Introduction

The LC4.2 LCD TV is a global LCD TV for the year 2004. It is the successor of the LC03 LCD TV and covers screens sizes 17, 23 and 26 inch (all in 16:9 ratio) and has a new styling, called Disc.
This chassis has the following (new) features:

- **Audio**: The sound processor is part of the UOC processor (called "Hercules"). The chassis has a FM Radio with 40 preset channels.
- **Video**: Enhanced video features, video drivers, Active Control and multiple PIP.

The architecture consists of a TV and Scaler panel, I/O panel, Side I/O and Local Keyboard panel and Power Supply panel. The functions for video/audio processing, microprocessor (P), and CC/Teletext (TXT) decoder are all combined in one IC (TDA120xx, item 7011), the so-called third generation Ultimate One Chip (UOC-III) or "Hercules". This chip has the following features:

- Control, small signal, mono/stereo, and extensive Audio/ Video switching in one IC.
- Upgrade with digital sound & video processing.
- Alignment free IF, including SECAM-L/L1 and AM.
- FM sound 4.5/5.5/6.0/6.5, no traps/bandpass filters.
- Full multi-standard color decoder.
- One Xtal reference for all functions (microprocessor, RCP, TXT/CC, RDS, color decoder, and stereo sound processor).

## 9.2 Block Diagram

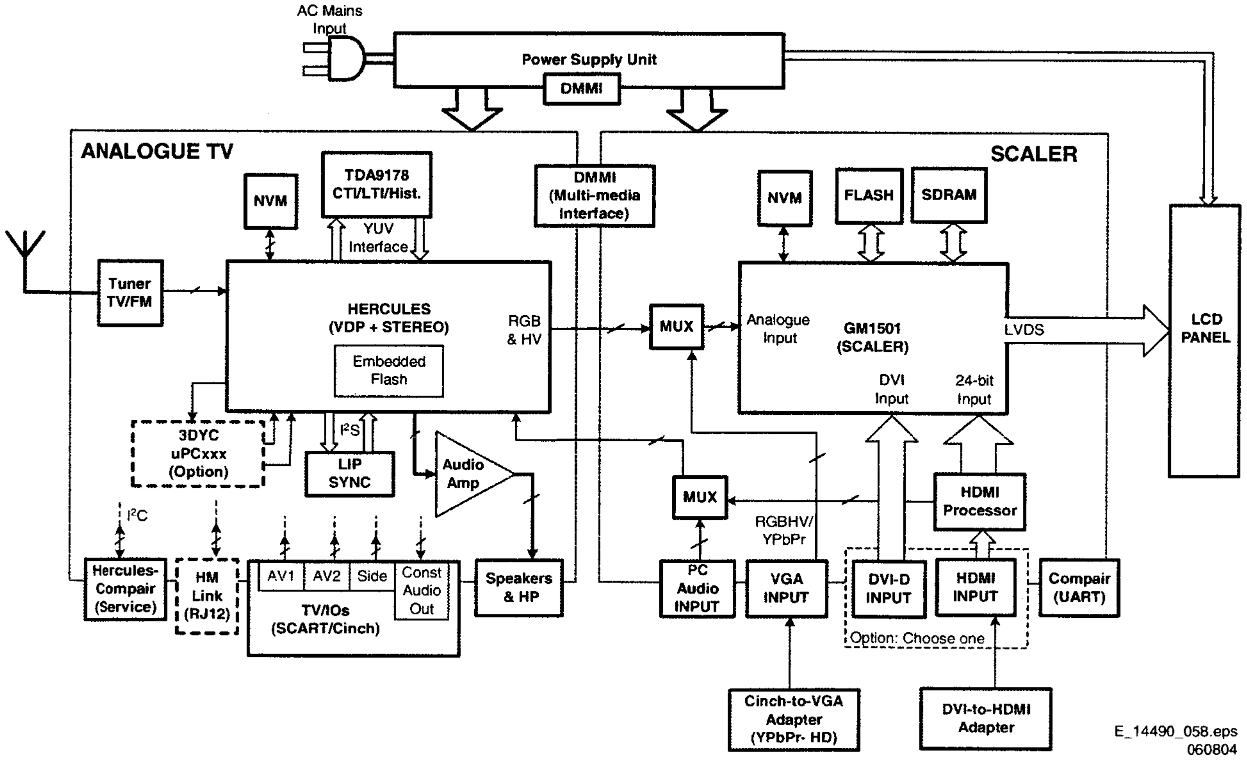

AC Mains Input
Power Supply Unit
DMMI
ANALOGUE TV
NVM
TDA9178 CTI/LTI/Hist.
YUV Interface
DMMI (Multi-media Interface)
SCALER
NVM
FLASH
SDRAM
Tuner TV/FM
HERCULES (VDP + STEREO)
Embedded Flash
RGB & HV
MUX
Analogue Input
GM1501 (SCALER)
LVDS
DVI Input
24-bit Input
LCD PANEL
3DYC uPCxxx (Option)
I²S
LIP SYNC
Audio Amp
MUX
RGBHV/ YPbPr
HDMI Processor
I²C
Hercules-Compair (Service)
HM Link (RJ12)
AV1
AV2
Side
Const Audio Out
TV/IOs (SCART/Cinch)
Speakers & HP
PC Audio INPUT
VGA INPUT
DVI-D INPUT
HDMI INPUT
Compair (UART)
Option: Choose one
Cinch-to-VGA Adapter (YPbPr- HD)
DVI-to-HDMI Adapter
E_14490_058.eps
060804

Figure 9-1 Block Diagram LC4.2

The PLL tuner UR1316 (with FM radio) delivers the IF-signal, via audio & video SAW-filters, to the Video Signal Processor and FLASH embedded TEXT/Control/Graphics Micro Controller TDA120x1 (item 7011, also called Hercules). This IC has the following functions:

- Analogue Video Processing
- Sound Demodulation
- Audio Interfaces and switching
- Volume and tone control for loudspeakers
- Reflection and delay for loudspeaker channels
- Micro Controller
- Data Capture
- Display

The Hercules has one input for the internal CVBS signal and a video switch with 3 external CVBS inputs and a CVBS output. All CVBS inputs can be used as Y-input for Y/C signals. However, only 2 Y/C sources can be selected because the circuit has 2 chroma inputs. It is possible to add an additional CVBS(Y)/C input (CVBS/YX and CX) when the YUV interface and the RGB/YPRPB input are not needed. Two SCART-connectors are used: SCART1 is fully equipped and SCART2 is meant for VCR. Pin 10 of SCART2 is used for Easylink (P50) and there is a possibility for Y/C in. The CVBS-out on pin 19 can be used for WYSIWYR (What You See Is What You Record).

The video part delivers the RGB signals to the Scaler IC.

The Genesis GM1501 Malibu Scaler IC can receive two video input signals: SDTV (from Hercules), DVI (from external DVI source), or PC (from external computer).
After the video processing, the digital data is send via a Low Voltage Differential Signalling bus to the LCD panel. LVDS is used to improve data speed and to reduce EMI significantly. There are two I2C lines and two interrupt and communication lines (TV_IRQ and TV_SC_COM) for the Scaler control. The Scaler communicates with the Hercules as a slave device. To avoid buffer overflow at the Scaler side, the TV_SC_COM line provides the necessary hardware flow control. To allow bi-directional communication, the Scaler can initiate a service interrupt-request to the Hercules via the TV_IRQ line.

The Hercules, and EEPROM are supplied with 3.3 V, which is also present during STANDBY.
The EEPROM, or NVM (Non Volatile Memory) is used to store the settings.

The sound part is built up around the Hercules. The Source Selection, Decoding and Processing are all done by the Hercules.

Power supply input are several DC voltages coming from a supply panel.

## 9.3 Power Supply

For Service, this supply panel is a black box. When defect (this can be traced via the fault-finding tips, or by strange phenomena), a new panel must be ordered (see table below for ordering codes), and after receipt, the defective panel must be send for repair.

**Table 9-1 Ordering Codes Power Supply**

| Screen size (inches) | Ordering Code |
|---|---|
| 17 | 3122 137 23040 |
| 23 | 3122 137 23070 |
| 26 | 3122 137 23080 |

## 9.4 Input/Output

The I/O is divided over two parts: Rear I/O and Side I/O. The rear has two SCART inputs, a PC (VGA) input, a DVI input, and an Audio input. The side has a CVBS and Y/C (SVHS) input.

**EXT1**: The input of SCART1 is CVBS + RGB + L/R and the output is the video (+ sound) signal from the tuner (SC1_CVBS_RF_OUT).

**EXT2**: The input of SCART2 is Y/C + CVBS + L/R. The output signal is CVBS_SC2_MON_OUT (+ sound).
SCART2 is meant for VCR and has therefore some additional signals in relation to EXT1 but no RGB: it has the possibility for Y/C_in: Y_in on pin 20 and Chroma_in on pin 15.
The selection of the external I/O's is controlled by the Hercules.

**PC (VGA) in:** This input is directly going to the Scaler IC. See paragraph "Video: Scaler Part".

**DVI-D in:** This input is directly going to the Scaler IC. See paragraph "Video: Scaler Part".

## 9.5 Tuner and IF

A Philips UR13xx Tuner with second input (for FM Radio) is used in the TV board. The SIF and FM signals are decoded by the Hercules. Tuning is done via I2C.

### 9.5.1 Video IF amplifier

The IF-filter is integrated in a SAW (Surface Acoustic Wave) filter. One for filtering IF-video (1328) and one for IF-audio (1330). The type of these filters is depending of the standard(s) that has to be received.

The output of the tuner is controlled via an IF-amplifier with AGC-control. This is a voltage feedback from pin 31 of the Hercules to pin 1 of the tuner. The AGC-detector operates on top sync and top white level. AGC take-over point is adjusted via the service alignment mode 'Tuner' - 'AGC'. If there is too much noise in the picture, then it could be that the AGC setting is wrong. The AGC-setting could also be mis-aligned if the picture deforms with perfect signal; the IF-amplifier amplifies too much.

## 9.6 Video: TV Part (diagrams A1, A2, and A3)

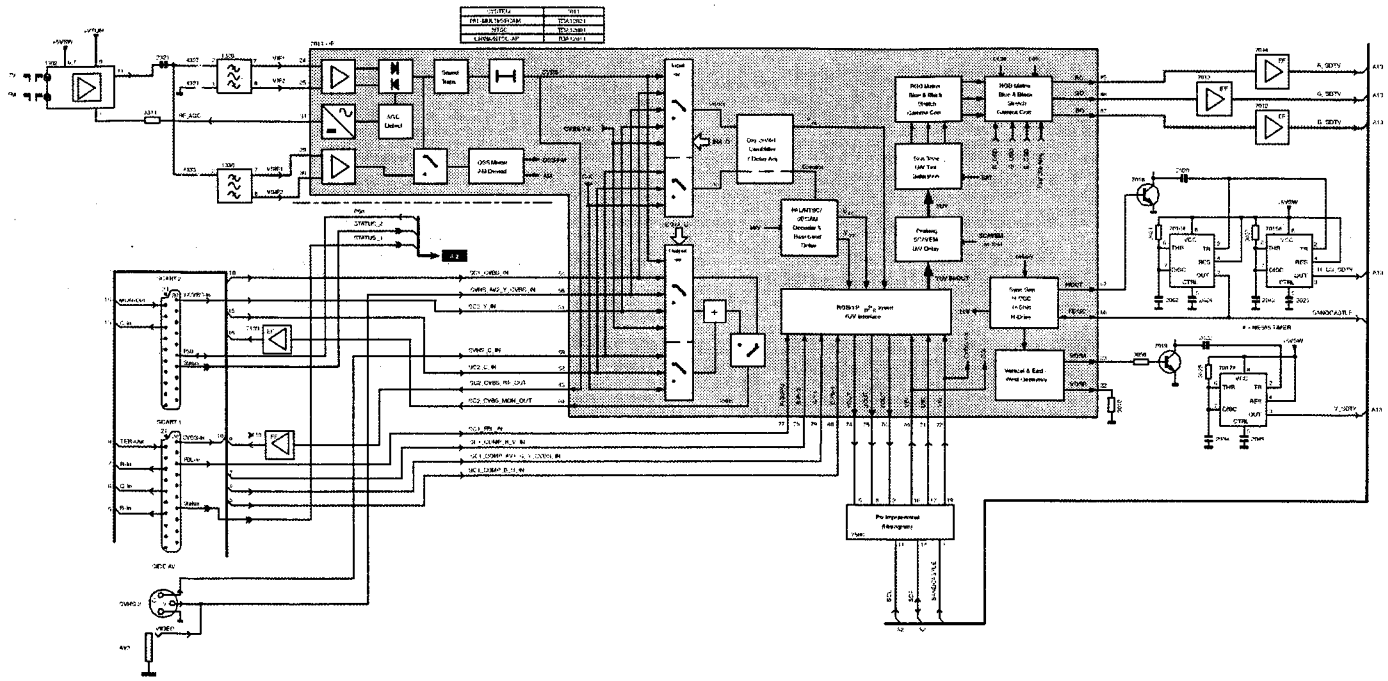


Figure 9-2 Block diagram video processing

The video processing is completely handled by the Hercules

- IF demodulator.
- Chrominance decoder
- Sync separator.
- Horizontal & vertical drive.
- RGB processing.
- CVBS and SVHS source select.

It has also build in features like:

- CTI.
- Black stretch.
- Blue stretch.
- White stretch.
- Slow start up.
- Dynamic skin tone correction etc.

Further, it also incorporates sound IF traps and filters, and requires only one crystal for all systems.

### 9.6.1 Histogram (YUV picture improvement) IC

The demodulated video-signal can be checked on pins 74, 75, and 76 of IC7011 and is fed to pins 70, 71, and 72. In this path, the Histogram IC TDA9171 is inserted.
This TDA9178 can control various picture improvements:

- Histogram processing.
- Colour transient improvement.
- Luminance transient improvement.
- Black and white stretch.
- Skin tone correction.
- Green enhancement.
- Blue stretch.
- Smart peaking.
- Video dependent coring.
- Colour dependent stretching.

Since the TDA9171 is connected to the Hercules, picture improvement works only for signals that are routed trough the Hercules and not for signals directly connected to the Scaler.

## 9.7 Video: Scaler Part (diagram A7 and A13)

The Genesis gm1501 Scaler is a dual channel graphics and video processing IC for LCD monitors and televisions incorporating Picture in Picture, up to SXGA output resolutions. The Scaler controls the display processing in an LCD TV, e.g. like the deflection circuit in a CRT-based TV. It controls all the view modes (e.g. like "zooming" and "shifting"). Features like PC (VGA) or HD inputs, are also handled by this part.

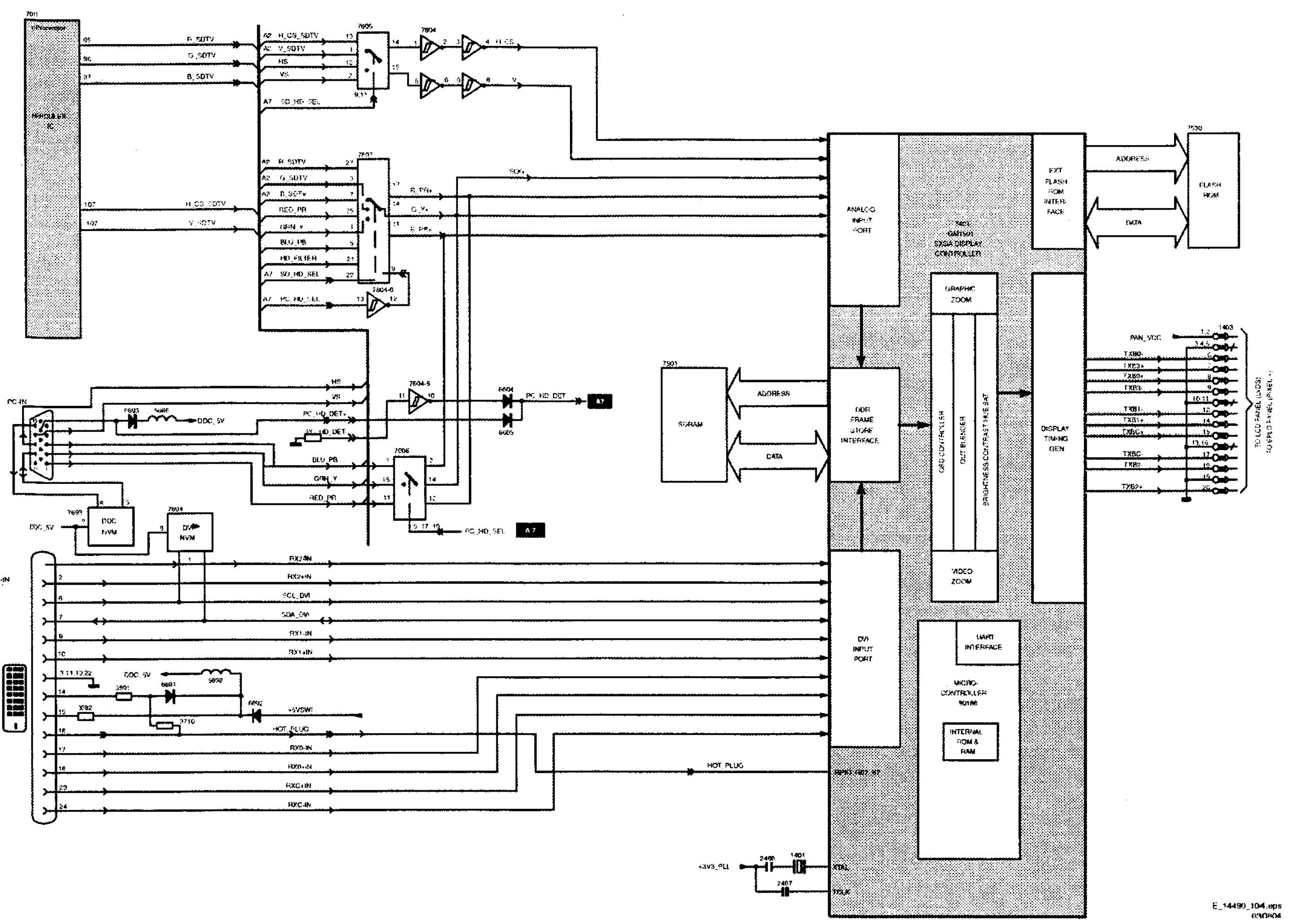


Figure 9-3 Block diagram Scaler Part

### 9.7.1 Features

The Scaler provides several key IC functions:

- Scaling.
- Auto-configuration/ Auto-Detection.
- Various Input Ports:
  - Analog RGB.
  - DVI Compliant.
  - Video Graphics.
- Integrated LVDS Transmitter.
- On-chip Micro-controller

### 9.7.2 Inputs

***Analog RGB***
The RGB input is fed to pins B2, C2 and D2. This input consists of either the Hercules RGB output or the RGB/YpbPr input of the VGA connector. The Scaler can switch between the two signals via the PC_HD_SEL signal and selection IC SM5301.

***PC (VGA) input***
The VGA input is processed by the VGA block of the Scaler. The Scaler supports pixel frequencies up to 165MHz. YpbPr format is also supported via the VGA interface and covers a resolution of 480p/560p/720p/1080i.

***DVI-D input***
The DVI-D input is processed by the Scaler and supports DVI sources with a pixel clock frequency up to 81MHz.

### 9.7.3 Output

The Display Output Port provides data and control signals that permit the Scaler to connect to a variety of display devices using a TTL or LVDS interface. The output interface is configurable for single or dual wide TTL/LVDS in 18, 24 or 30-bit RGB pixels format. All display data and timing signals are synchronous with the DCLK output clock. The integrated LVDS transmitter is programmable to allow the data and control signals to be mapped into any sequence depending on the specified receiver format.

## 9.8 Video: Pixel Plus Part (diagram PP1 to PP4)

The Pixel Plus functionality is completely handled by an Electronic Programmable Logic Device, EPLD (item 7101 on diagram PP1, PP3). The LVDS output from the TV & Scaler Board is fed trough a LVDS receiver (item 7201 on diagram PP2) and then delivered to the EPLD. The EPLD processes the signal and it is fed to the LCD panel via a LVDS transmitter (item 7403 on diagram PP3).
The EPLD takes care of all picture improvement processing, like:

- Colour improvement
  - Blue stretch
  - Green enhancement
  - Saturation control
- Sharpness enhancement
  - Non-linear horizontal peaking
  - Non-linear vertical peaking
  - Coring, clipping

  - Sharpness meter
- Contrast improvement
- Gamma Look-Up Table

All other picture improvement processing is done in the Scaler.

## 9.9 Audio Processing

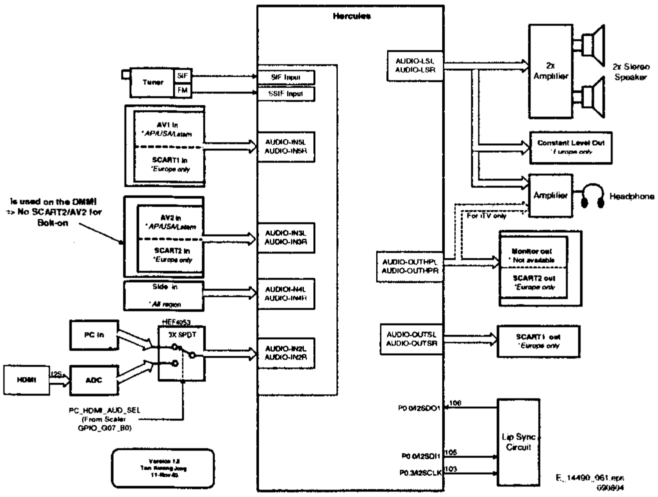

Hercules
Tuner
SIF
FM
SIF Input
SSIF Input
AV1 In
*AP/USA/Latam
SCART1 In
*Europe only
AUDIO-IN5L
AUDIO-IN5R
Is used on the DMMI
=> No SCART2/AV2 for
Bolt-on
AV2 In
*AP/USA/Latam
SCART2 In
*Europe only
AUDIO-IN3L
AUDIO-IN3R
Side In
*All region
AUDIOI-N4L
AUDIO-IN4R
HEF4053
3X SPDT
PC In
HDMI
I2S
ADC
AUDIO-IN2L
AUDIO-IN2R
PC_HDMI_AUD_SEL
(From Scaler
GPIO_G07_B0)
Version 1.0
Tan Kwang Jong
11-Nov-03
AUDIO-LSL
AUDIO-LSR
2x
Amplifier
2x Stereo
Speaker
Constant Level Out
*Europe only
Amplifier
Headphone
For iTV only
AUDIO-OUTHPL
AUDIO-OUTHPR
Monitor out
*Not available
SCART2 out
*Europe only
AUDIO-OUTSL
AUDIO-OUTSR
SCART1 out
*Europe only
P0.0/I2SDO1
106
P0.0/I2SDI1
105
P0.3/I2SCLK
103
Lip Sync
Circuit
E_14490_061.eps
090804

Figure 9-4 Block diagram audio processing

The audio decoding is done entirely via the Hercules. The IF output from the Tuner is fed directly to either the Video-IF or the Sound-IF input depending on the type of concept chosen. There are mainly two types of decoder in the Hercules, an analogue decoder that decodes only Mono, regardless of any standards, and a digital decoder (or DEMDEC) that can decode both Mono as well as Stereo, again regardless of any standards.

In this chassis, the analogue decoder is used in two cases:

- It is used for AM Sound demodulation in the Europe SECAM LL' transmission.
- It is used for all FM demodulation in AV-Stereo sets.

### 9.9.1 Diversity

The diversity for the Audio decoding can be broken up into two main concepts:

- The Quasi Split Sound concept used in Europe and some AP sets.
- The Inter Carrier concept, used in NAFTA and LATAM.

The UOC-III family makes no difference anymore between QSS- and Intercarrier IF, nearly all types are software-switchable between the two SAW-filter constructions.

Simple data settings are required for the set to determine whether it is using the Inter Carrier or the QSS concept. These settings are done via the "QSS" and "FMI" bit found in SAM mode. Due to the diversity involved, the data for the 2 bits are being placed in the NVM location and it is required to write once during startup.

On top of that, it can be further broken down into various systems depending on the region. The systems or region chosen, will in turn affect the type of sound standard that is/are allowed to be decoded.

- For the case of Europe, the standard consists of BG/DK/I/LL' for a Multi-System set. There are also versions of Eastern Europe and Western Europe set and the standard for decoding will be BG/DK and I/DK respectively. FM Radio is a feature diversity for the Europe sets. The same version can have either FM Radio or not, independent of the system (e.g. sets with BG/DK/I/LL' can have or not have FM radio).
- For the case of NAFTA and LATAM, there is only one transmission standard, which is the M standard. The diversity then will be based on whether it has a dBx noise reduction or a Non-dBx (no dBx noise reduction).
- For the case of AP, the standard consists of BG/DK/I/M for a Multi-System set. The diversity here will then depends on the region. AP China can have a Multi-System and I/DK version. For India, it might only be BG standard.

### 9.9.2 Functionality

The features available in the Hercules are as follows:

- Treble and Bass Control.
- Surround Sound Effect that includes:
  - Incredible Stereo.
  - Incredible Mono.
  - 3D Sound (not for AV Stereo).
  - TruSurround (not for AV Stereo).
  - Virtual Dolby Surround, VDS422 (not for AV Stereo).
  - Virtual Dolby Surround, VDS423 (not for AV Stereo).
  - Dolby Pro-Logic (not for AV Stereo).
- Bass Feature that includes:
  - Dynamic Ultra-Bass.
  - Dynamic Bass Enhancement.
  - BBE (not for AV Stereo).
- Auto-Volume Leveler.
- 5 Band Equalizer.
- Loudness Control.

All the features stated are available for the Full Stereo versions and limited features for the AV Stereo

### 9.9.3 Audio Amplifier

The audio amplifier part is very straightforward. It uses the integrated power amplifier TDA7297D, and delivers a maximum output of 2 x 15 W_rms.
The maximum operating condition for this amplifier is 20 V unloaded. Normal operating supply is from 6.5 V to 18 V.
Muting is done via the SOUND_ENABLE line connected to pin 13 of the amplifier-IC and coming from the Hercules.

### 9.9.4 Audio: Lip Sync

The LC4.2E is not equipped with Lip Sync. This is not needed.

## 9.10 Control

### 9.10.1 Hercules

The System Board has two main micro-controllers on board. These are:

- On-chip x86 micro-controller (OCM) from Genesis LCD TV/ Monitor Controller.
- On-chip 80C51 micro-controller from Philips Semiconductor UOCIII (Hercules) series.

Each micro-controller has it own I2C bus which host its own internal devices.
The Hercules is integrated with the Video and Audio Processor. For dynamic data storage, such as SMART PICTURE and SMART SOUND settings, an external NVM IC is being used. Another feature includes an optional Teletext/Closed Caption decoder with the possibility of different page storage depending on the Hercules type number.

The Micro Controller ranges in ROM from 128 kB with no TXT-decoder to 128 kB with a 10 page Teletext or with Closed Caption.

### 9.10.2 Block Diagram

The block diagram of the Micro Controller application is shown below.

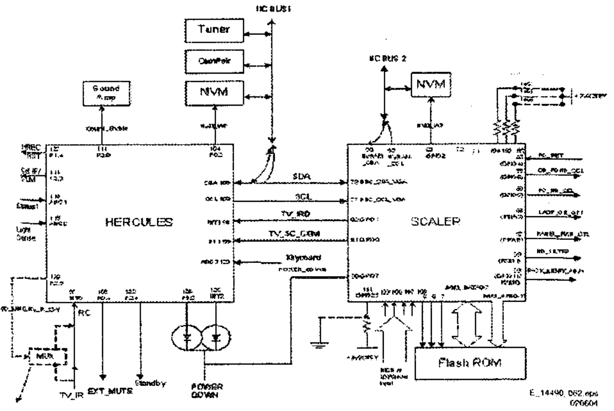


Figure 9-5 Micro Controller block diagram

### 9.10.3 Basic Specification

The Micro Controller operates at the following supply voltages:

- +3.3 V_dc at pins 4, 88, 94, and 109.
- +1.8 V_dc at pins 93, 96, and 117.
- I2C pull up supply: +3.3V_dc.

### 9.10.4 Pin Configuration and Functionality

The ports of the Micro Controller can be configured as follows:

- A normal input port.
- An input ADC port.
- An output Open Drain port.
- An output Push-Pull port.
- An output PWM port.
- Input/Output Port

The following table shows the ports used for the L04 control:

**Table 9-2 Micro Controller ports overview**

| Pin | Name | Description | Configuration |
|---|---|---|---|
| 97 | INT0/ P0.5 | IR | INT0 |
| 98 | P1.0/ INT1 | TV_IRQ | INT2 |
| 99 | P1.1/ T0 | TV_SC_COM | P1.1 |
| 102 | P0.4/ I2SWS | EXT_MUTE | P0.4 |
| 103 | P0.3/ I2SCLK | Lip Sync | I2SCLK |
| 104 | P0.2/ I2SDO2 | NVM_WP | P0.2 |
| 105 | P0.1/ I2SDO1 | Lip Sync | I2SDO1 |
| 106 | P0.0/ I2SDI/O | Lip Sync | I2SDI/O |
| 107 | P1.3/ T1 | PC-TV_LED | P1.3 |
| 108 | P1.6/ SCL | SCL | SCL |
| 109 | P1.7/ SDA | SDA | SDA |
| 111 | P2.0/ TPWM | SOUND_ENABLE | P2.0 |
| 112 | P2.1/ PWM0 | (for future use) | - |
| 113 | P2.2/ PWM1 | (for future use) | - |
| 114 | P2.3/ PWM2 | SEL_IF | P2.3 |
| 115 | P3.0/ ADC0 | Light Sensor - SDM | ADC0 |
| 116 | P3.1/ ADC1 | STATUS_1 | ADC1 |
| 119 | P3.2/ ADC2 | STATUS_2 | ADC2 |
| 120 | P3.3/ ADC3 | KEYBOARD | ADC3 |
| 122 | P2.4/ PWM3 | STANDBY | P2.4 |
| 123 | P2.5/ PWM4 | (for future use) | - |
| 126 | P1.2/ INT2 | (for future use) | - |
| 127 | P1.4/ RX | HERC_RESET | - |
| 128 | P1.5/ TX | POWER_DOWN | P1.5 |

The description of each functional pin is explained below:

- **LED.** This signal is used as an indication for the Standby, Remote and Error Indicator. Region diversity:
  - During protection mode, the LED blinks and the set is in standby mode.
  - During error conditions it blinks at a predefined rate.
  - After receiving a valid RC-5 or local keyboard command it flashes once.
  - For sets with error message indication, the LED blinks when message is active and the set is in standby mode.
- **SCL.** This is the clock wire of the two-wire single master bi-directional I2C bus.
- **SDA.** This is the data wire of the two-wire single master bi-directional I2C bus.
- **STANDBY.** The Hercules generates this signal. This can enable the power supply in normal operation and disable it during Standby. It is of logic "high" (3.3 V) under normal operation and "low" (0 V) during Standby.
- **IR.** This input pin is connected to an RC5 remote control receiver.
- **SEL-IF.** This is an output pin to switch the Video SAW filter between M system and other systems.
  - 0: NTSC M (default)
  - 1: PAL B/G, DK, I, L
- **NVM_WP.** The global protection line is used to enable and disable write protection to the NVM. When write to the NVM is required, pin 7 of the NVM must be pulled to logic '0' first (via Write_Protect of the micro-controller pin) before a write is performed. Otherwise pin 7 of NVM must always be at logic "1"
  - 0: Disabled
  - 1: Enabled (default)
- **SOUND_ENABLE.** This pin is use to MUTE the audio amplifier. It is configured as push pull.
- **STATUS_1.** This signal is used to read the status of the SCART 1 input.
- **STATUS_2.** This signal is used to read the status of the SCART 2 input.
- **HERC_RESET.** This pin is use to switch the +1.8V supply.
- POWER_DOWN. The power supply generates this signal. Logic "high" (3.3 V) under normal operation of the TV and goes "low" (0 V) when the Mains input voltage supply goes below 70 V_ac.
- Keyboard. Following are the Keyboard functions and the step values (8 bit) for it.

**Table 9-3 Local keyboard values**

| Function | Voltage (V_dc) | Step values (8 bit) |
|---|---|---|
| NAFTA Standby | 0 | 0 - 6 |
| Ch + | 0.43 | 7 - 33 |
| Exit Factory (Ch- and Vol-) | 0.69 | 34 - 53 |
| Ch - | 0.93 | 54 - 73 |
| Menu (Vol - and Vol +) | 1.19 | 74 - 96 |
| Vol - | 1.49 | 97 - 121 |
| DVD Eject | 1.8 | 122 - 147 |
| Vol + | 2.12 | 148 - 169 |

- **TV_IRQ.** This signal is the interrupt from the Scaler IC.
- **TV_SC_COM.** This signal is used for the communication with the Scaler IC.
- **EXT_MUTE.** This signal is used to reduce the Switch-off plop.

## 9.11 LCD Display

### 9.11.1 Specifications

| | |
|---|---|
| Panel model | : LC171W03-A4K3 (17") |

| | |
|---|---|
| | : LC230W01-A2K8 (23") |
| | : LC260W01-A5K6 (26") |
| Resolution (HxV) | : 1080x768 pixels (17") |
| | : 1280x768 pixels (23") |
| | : 1280x768 pixels (26") |
| Luminance | : 450 nit (17") |
| | : 450 nit (23") |
| | : 450 nit (26") |
| Supplier | : LG.Philips LCD |

## 9.12 Abbreviation list

| | |
|---|---|
| 0/6/12 | SCART switch control signal on A/V board. 0 = loop through (AUX to TV), 6 = play 16:9 format, 12 = play 4:3 format |
| 1080i | 1080 visible lines, interlaced |
| 1080p | 1080 visible lines, progressive scan |
| 2CS | 2 Carrier Stereo |
| 480i | 480 visible lines, interlaced |
| 480p | 480 visible lines, progressive scan |
| ACI | Automatic Channel Installation: algorithm that installs TV channels directly from a cable network by means of a predefined TXT page |
| ADC | Analogue to Digital Converter |
| AFC | Automatic Frequency Control: control signal used to tune to the correct frequency |
| AGC | Automatic Gain Control: algorithm that controls the video input of the feature box |
| AM | Amplitude Modulation |
| AP | Asia Pacific |
| AR | Aspect Ratio: 4 by 3 or 16 by 9 |
| ASD | Automatic Standard Detection |
| AV | Audio Video |
| B-SC1-IN | Blue SCART1 in |
| B-SC2-IN | Blue SCART2 in |
| B-TXT | Blue teletext |
| B/G | Monochrome TV system. Sound carrier distance is 5.5 MHz |
| BOCMA | Bimos one Chip Mid-end Architecture: video and chroma decoder |
| C-FRONT | Chrominance front input |
| CBA | Circuit Board Assembly (or PWB) |
| CL | Constant Level: audio output to connect with an external amplifier |
| CLUT | Colour Look Up Table |
| ComPair | Computer aided rePair |
| CSM | Customer Service Mode |
| CVBS | Composite Video Blanking and Synchronisation |
| CVBS-EXT | CVBS signal from external source (VCR, VCD, etc.) |
| CVBS-INT | CVBS signal from Tuner |
| CVBS-MON | CVBS monitor signal |
| CVBS-TER-OUT | CVBS terrestrial out |
| DAC | Digital to Analogue Converter |
| DBE | Dynamic Bass Enhancement: extra low frequency amplification |
| DFU | Directions For Use: owner's manual |
| DNR | Dynamic Noise Reduction |
| DRAM | Dynamic RAM |
| DSP | Digital Signal Processing |
| DST | Dealer Service Tool: special (European) remote control designed for service technicians |
| DTS | Digital Theatre Sound |
| DVD | Digital Video Disc |
| EEPROM | Electrically Erasable and Programmable Read Only Memory |
| EPG | Electronic Program Guide: system used by broadcasters to transmit TV guide information (= NexTView) |
| EPLD | Electronic Programmable Logic Device |
| EU | EUrope |
| EXT | EXTernal (source), entering the set by SCART or by cinches (jacks) |
| FBL | Fast Blanking: DC signal accompanying RGB signals |
| FBL-SC1-IN | Fast blanking signal for SCART1 in |
| FBL-SC2-IN | Fast blanking signal for SCART2 in |
| FBL-TXT | Fast Blanking Teletext |
| FLASH | FLASH memory |
| FM | Field Memory / Frequency Modulation |
| FMR | FM Radio |
| FRC | Frame Rate Converter |
| FRONT-C | Front input chrominance (SVHS) |
| FRONT-DETECT | Front input detection |
| FRONT-Y_CVBS | Front input luminance or CVBS (SVHS) |
| G-SC1-IN | Green SCART1 in |
| G-SC2-IN | Green SCART2 in |
| G-TXT | Green teletext |
| H | H_sync to the module |
| HA | Horizontal Acquisition: horizontal sync pulse coming out of the BOCMA |
| HD | High Definition |
| HP | HeadPhone |
| I | Monochrome TV system. Sound carrier distance is 6.0 MHz |
| I2C | Integrated IC bus |
| I2S | Integrated IC Sound bus |
| IC | Integrated Circuit |
| IF | Intermediate Frequency |
| Interlaced | Scan mode where two fields are used to form one frame. Each field contains half the number of the total amount of lines. The fields are written in "pairs", causing line flicker. |
| IR | Infra Red |
| IRQ | Interrupt ReQuest |
| Last Status | The settings last chosen by the customer and read and stored in RAM or in the NVM. They are called at start-up of the set to configure it according the customers wishes |
| LATAM | LATin AMerica |
| LC04 | Philips chassis name for LCD TV 2004 project |
| LCD | Liquid Crystal Display |
| LED | Light Emitting Diode |
| LINE-DRIVE | Line drive signal |
| L/L' | Monochrome TV system. Sound carrier distance is 6.5 MHz. L' is Band I, L is all bands except for Band I |
| LS | LoudSpeaker |
| LVDS | Low Voltage Differential Signalling, data transmission system for high speed and low EMI communication. |
| M/N | Monochrome TV system. Sound carrier distance is 4.5 MHz |
| MOSFET | Metal Oxide Semiconductor Field Effect Transistor |
| MPEG | Motion Pictures Experts Group |
| MSP | Multi-standard Sound Processor: ITT sound decoder |
| MUTE | MUTE Line |
| NC | Not Connected |
| NICAM | Near Instantaneous Compounded Audio Multiplexing. This is a digital sound system, used mainly in Europe. |
| NTSC | National Television Standard Committee. Colour system used mainly in North America and Japan. |

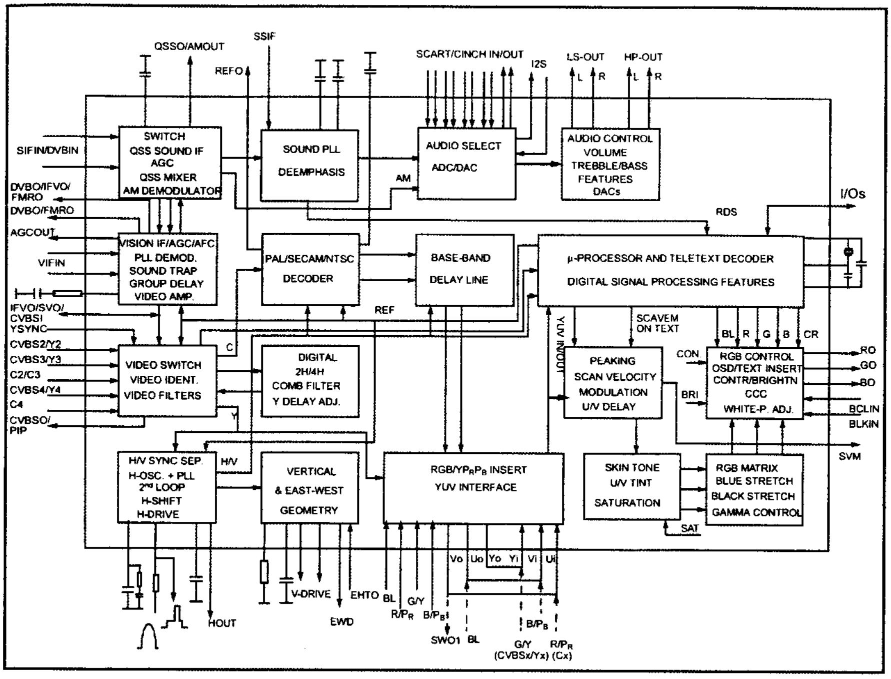
| | |
|---|---|
| | Colour carrier NTSC M/N = 3.579545 MHz, NTSC 4.43 = 4.433619 MHz (this is a VCR norm, it is not transmitted off-air) |
| NVM | Non Volatile Memory: IC containing TV related data (for example, options) |
| O/C | Open Circuit |
| ON/OFF LED | On/Off control signal for the LED |
| OSD | On Screen Display |
| P50 | Project 50 communication: protocol between TV and peripherals |
| PAL | Phase Alternating Line. Colour system used mainly in Western Europe (colour carrier = 4.433619 MHz) and South America (colour carrier PAL M = 3.575612 MHz and PAL N = 3.582056 MHz) |
| PC | Personal Computer |
| PCB | Printed Circuit Board (or PWB) |
| PIG | Picture In Graphic |
| PIP | Picture In Picture |
| PLL | Phase Locked Loop. Used, for example, in FST tuning systems. The customer can directly provide the desired frequency |
| Progressive Scan | Scan mode where all scan lines are displayed in one frame at the same time, creating a double vertical resolution. |
| PWB | Printed Wiring Board (or PCB) |
| RAM | Random Access Memory |
| RC | Remote Control transmitter |
| RC5 | Remote Control system 5, the signal from the remote control receiver |
| RGB | Red, Green, and Blue. The primary colour signals for TV. By mixing levels of R, G, and B, all colours (Y/C) are reproduced. |
| RGBHV | Red, Green, Blue, Horizontal sync, and Vertical sync |
| ROM | Read Only Memory |
| SAM | Service Alignment Mode |
| SIF | Sound Intermediate Frequency |
| SC | SandCastle: two-level pulse derived from sync signals |
| SC1-OUT | SCART output of the MSP audio IC |
| SC2-B-IN | SCART2 Blue in |
| SC2-C-IN | SCART2 chrominance in |
| SC2-OUT | SCART output of the MSP audio IC |
| S/C | Short Circuit |
| SCART | Syndicat des Constructeurs d'Appareils Radiorecepteurs et Televisieurs |
| SCL | CLock Signal on I2C bus |
| SD | Standard Definition |
| SDA | DAta Signal on I2C bus |
| SDRAM | Synchronous DRAM |
| SECAM | SEequence Couleur Avec Memoire. Colour system used mainly in France and Eastern Europe. Colour carriers = 4.406250 MHz and 4.250000 MHz |
| SIF | Sound Intermediate Frequency |
| SMPS | Switch Mode Power Supply |
| SND | SouND |
| SNDL-SC1-IN | Sound left SCART1 in |
| SNDL-SC1-OUT | Sound left SCART1 out |
| SNDL-SC2-IN | Sound left SCART2 in |
| SNDL-SC2-OUT | Sound left SCART2 out |
| SNDR-SC1-IN | Sound right SCART1 in |
| SNDR-SC1-OUT | Sound right SCART1 out |
| SNDR-SC2-IN | Sound right SCART2 out |
| SNDR-SC2-OUT | Sound right SCART2 out |
| SNDS-VL-OUT | Surround sound left variable level out |
| SNDS-VR-OUT | Surround sound right variable level out |
| SOPS | Self Oscillating Power Supply |
| S/PDIF | Sony Philips Digital InterFace |
| SRAM | Static RAM |
| STBY | STandBY |
| SVHS | Super Video Home System |
| SW | SubWoofer / SoftWare |
| THD | Total Harmonic Distortion |
| TXT | TeleteXT |
| uP | Microprocessor |
| VA | Vertical Acquisition |
| VL | Variable Level out: processed audio output toward external amplifier |
| VCR | Video Cassette Recorder |
| VGA | Video Graphics Array |
| WD | Watch Dog |
| WYSIWYR | What You See Is What You Record: record selection that follows main picture and sound |
| XTAL | Quartz crystal |
| YPbPr | Component video (Y= Luminance, Pb/Pr= Colour difference signals) |
| Y/C | Luminance (Y) and Chrominance (C) signal |
| Y-OUT | Luminance-signal |
| YUV | Component video |

## 9.13 IC Data Sheets

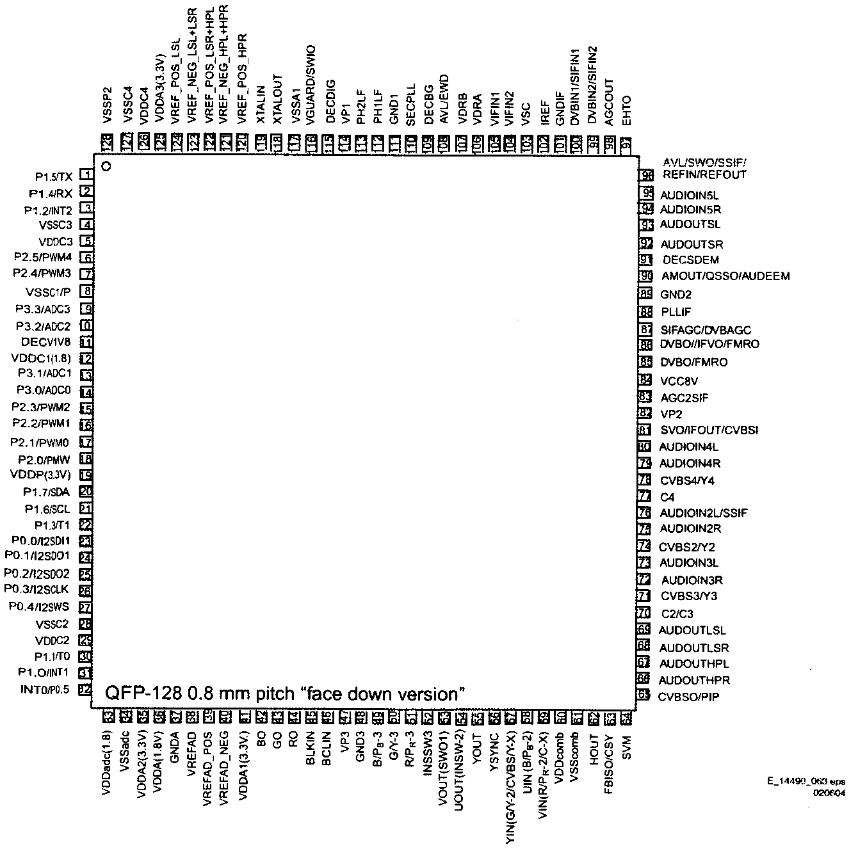
This section shows the internal block diagrams and pin layouts of ICs that are drawn as "black boxes" in the electrical diagrams (with the exception of "memory" and "logic" ICs).

### 9.13.1 Diagram A2, Type TDA12029H (IC7011)

Block diagram of the "AV-stereo" TV processor with audio DSP


QSSO/AMOUT
SSIF
REFO
SCART/CINCH IN/OUT
I2S
LS-OUT
HP-OUT
L
R
L
R
SIFIN/DVBIN
SWITCH
QSS SOUND IF
AGC
QSS MIXER
AM DEMODULATOR
SOUND PLL
DEEMPHASIS
AM
AUDIO SELECT
ADC/DAC
AUDIO CONTROL
VOLUME
TREBBLE/BASS
FEATURES
DACs
DVBO/IFVO/
FMRO
DVBO/FMRO
I/Os
RDS
AGCOUT
VIFIN
VISION IF/AGC/AFC
PLL DEMOD.
SOUND TRAP
GROUP DELAY
VIDEO AMP.
PAL/SECAM/NTSC
DECODER
BASE-BAND
DELAY LINE
μ-PROCESSOR AND TELETEXT DECODER
DIGITAL SIGNAL PROCESSING FEATURES
IFVO/SVO/
CVBSI
YSYNC
REF
YUV IN/OUT
SCAVEM
ON TEXT
CVBS2/Y2
CVBS3/Y3
C2/C3
CVBS4/Y4
C4
CVBSO/
PIP
C
VIDEO SWITCH
VIDEO IDENT.
VIDEO FILTERS
DIGITAL
2H/4H
COMB FILTER
Y DELAY ADJ.
PEAKING
SCAN VELOCITY
MODULATION
U/V DELAY
CON
BRI
BL
R
G
B
CR
RGB CONTROL
OSD/TEXT INSERT
CONTR/BRIGHTN
CCC
WHITE-P. ADJ.
RO
GO
BO
BCLIN
BLKIN
SVM
Y
H/V SYNC SEP.
H-OSC. + PLL
2nd LOOP
H-SHIFT
H-DRIVE
H/V
VERTICAL
& EAST-WEST
GEOMETRY
RGB/YPRPB INSERT
YUV INTERFACE
SKIN TONE
U/V TINT
SATURATION
RGB MATRIX
BLUE STRETCH
BLACK STRETCH
GAMMA CONTROL
SAT
Vo
Uo
Yo
Yi
Vi
Ui
V-DRIVE
EHTO
BL
G/Y
R/PR
B/PB
B/PB
HOUT
EWD
SWO1
BL
G/Y
R/PR
(CVBSx/Yx)
(Cx)

Pin configuration "stereo" and "AV-stereo" versions with Audio DSP


P1.5/TX 1
P1.4/RX 2
P1.2/INT2 3
VSSC3 4
VDDC3 5
P2.5/PWM4 6
P2.4/PWM3 7
VSSC1/P 8
P3.3/ADC3 9
P3.2/ADC2 10
DECV1V8 11
VDDC1(1.8) 12
P3.1/ADC1 13
P3.0/ADC0 14
P2.3/PWM2 15
P2.2/PWM1 16
P2.1/PWM0 17
P2.0/PMW 18
VDDP(3.3V) 19
P1.7/SDA 20
P1.6/SCL 21
P1.3/T1 22
P0.0/I2SDI1 23
P0.1/I2SDO1 24
P0.2/I2SDO2 25
P0.3/I2SCLK 26
P0.4/I2SWS 27
VSSC2 28
VDDC2 29
P1.1/T0 30
P1.0/INT1 31
INT0/P0.5 32
33 VDDadc(1.8)
34 VSSadc
35 VDDA2(3.3V)
36 VDDA(1.8V)
37 GNDA
38 VREFAD
39 VREFAD_POS
40 VREFAD_NEG
41 VDDA1(3.3V)
42 BO
43 GO
44 RO
45 BLKIN
46 BCLIN
47 VP3
48 GND3
49 B/PB-3
50 G/Y-3
51 R/PR-3
52 INSSW3
53 VOUT(SWO1)
54 UOUT(INSW-2)
55 YOUT
56 YSYNC
57 YIN(G/Y-2/CVBS/Y-X)
58 UIN(B/PB-2)
59 VIN(R/PR-2/C-X)
60 VDDcomb
61 VSScomb
62 HOUT
63 FBISO/CSY
64 SVM
65 CVBSO/PIP
66 AUDOUTHPR
67 AUDOUTHPL
68 AUDOUTLSR
69 AUDOUTLSL
70 C2/C3
71 CVBS3/Y3
72 AUDIOIN3R
73 AUDIOIN3L
74 CVBS2/Y2
75 AUDIOIN2R
76 AUDIOIN2L/SSIF
77 C4
78 CVBS4/Y4
79 AUDIOIN4R
80 AUDIOIN4L
81 SVO/IFOUT/CVBSI
82 VP2
83 AGC2SIF
84 VCC8V
85 DVBO/FMRO
86 DVBO/IFVO/FMRO
87 SIFAGC/DVBAGC
88 PLLIF
89 GND2
90 AMOUT/QSSO/AUDEEM
91 DECSDEM
92 AUDOUTSR
93 AUDOUTSL
94 AUDIOIN5R
95 AUDIOIN5L
96 AVL/SWO/SSIF/REFIN/REFOUT
97 EHTO
98 AGCOUT
99 DVBIN2/SIFIN2
100 DVBIN1/SIFIN1
101 GNDIF
102 IREF
103 VSC
104 VIFIN2
105 VIFIN1
106 VDRA
107 VDRB
108 AVL/EWD
109 DECBG
110 SECPLL
111 GND1
112 PH1LF
113 PH2LF
114 VP1
115 DECDIG
116 VGUARD/SWIO
117 VSSA1
118 XTALOUT
119 XTALIN
120 VREF_POS_HPR
121 VREF_NEG_HPL+HPR
122 VREF_POS_LSR+HPL
123 VREF_NEG_LSL+LSR
124 VREF_POS_LSL
125 VDDA3(3.3V)
126 VDDC4
127 VSSC4
128 VSSP2
QFP-128 0.8 mm pitch "face down version"
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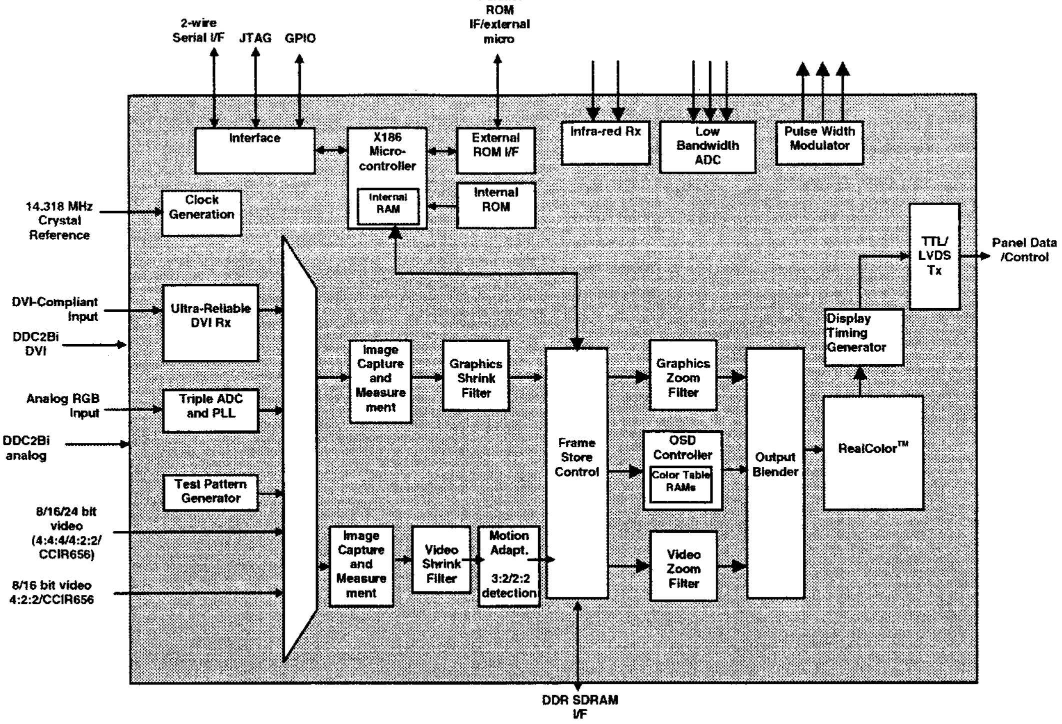
020604

**Figure 9-6 Internal Block Diagram and Pin Configuration**

### 9.13.2 Diagram A7, Type GM1501 (IC7401)

## Block Diagram


2-wire Serial I/F
JTAG
GPIO
Parallel ROM IF/external micro
Interface
X186 Micro-controller
Internal RAM
External ROM I/F
Internal ROM
Infra-red Rx
Low Bandwidth ADC
Pulse Width Modulator
14.318 MHz Crystal Reference
Clock Generation
TTL/ LVDS Tx
Panel Data /Control
DVI-Compliant Input
DDC2Bi DVI
Ultra-Reliable DVI Rx
Analog RGB Input
Triple ADC and PLL
DDC2Bi analog
Test Pattern Generator
8/16/24 bit video (4:4:4/4:2:2/ CCIR656)
8/16 bit video 4:2:2/CCIR656
Image Capture and Measure ment
Graphics Shrink Filter
Frame Store Control
Graphics Zoom Filter
OSD Controller
Color Table RAMs
Output Blender
Display Timing Generator
RealColor™
Image Capture and Measure ment
Video Shrink Filter
Motion Adapt. 3:2/2:2 detection
Video Zoom Filter
DDR SDRAM I/F

## Pin Configuration

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | NC | ADC_3.3 | ADC_1.8 | ADC_1.8 | ADC_DGND | RXC+ | DVI_GND | RX0+ | RX1+ | RX2+ | DVI_GND | LBADC_N3 | D_GND |
| B | BLUE- | BLUE+ | ADC_3.3 | ADC_DGND | DVI_GND | RXC- | DVI_GND | RX0- | RX1- | RX2- | REXT | LBADC_IN2 | D_GND |
| C | GREEN- | GREEN+ | SOG | ADC_AGND | NC | DVI_3.3 | DVI_GND | DVI_3.3 | DVI_3.3 | DVI_3.3 | DVI_3.3 | LBADC_N1 | LBADC_33 |
| D | RED- | RED+ | ADC_3.3 | ADC_AGND | NC | DVI_1.8 | DVI_GND | DVI_1.8 | DVI_1.8 | DVI_1.8 | DVI_GND | LBADC_ RETURN | LBADC_GND |
| E | ADC_AGND | ADC_AGND | ADC_3.3 | ADC_AGND | | | | | | | | | |
| F | NC | VDDD33_ PLL | VSSA33_ RPLL | VDDA33_ RPLL | | | | | | | | | |
| G | VDDA33 FPLL | VSSD33 PLL | TCLK | XTAL | | | | | | | | | |
| H | VDDD33 SDDS | VSSA33 SDDS | VDDA33 SDDS | VSSA33 FPLL | | | | | | | | | |
| J | VDDD33 DDDS | VSSA33 DDDS | VDDA33 DDDS | VSSD33 SDDS | | | | | | | | | |
| K | RESETn | ACS RSET_HD | NC | VSSD33 DDDS | | | | | | CORE_1.8 | CORE_1.8 | D_GND | D_GND |
| L | OCM_INT2 | OCM_INT1 | AVSYNC | AHSYNC | | | | | | D_GND | CORE_1.8 | D_GND | D_GND |
| M | OCM_UDO | OCM_UDI | IR0 | IR1 | | | | | | D_GND | D_GND | D_GND | D_GND |
| N | VGA_SDA | VGA_SCL | DVI_SDA | DVI_SCL | | | | | | D_GND | D_GND | D_GND | D_GND |
| P | OCM_CS1n | OCM_CS2n | MSTR_SDA | MSTR_SCL | | | | | | D_GND | D_GND | D_GND | D_GND |
| R | ROM_CSn | OCM_REn | OCM_WEn | EXTCLK | | | | | | D_GND | D_GND | D_GND | D_GND |
| T | OCMADDR 17 | OCMADDR 18 | OCMADDR 19 | OCM_CS0n | | | | | | D_GND | CORE_1.8 | D_GND | D_GND |
| U | OCMADDR 13 | OCMADDR 14 | OCMADDR 15 | OCMADDR 16 | | | | | | CORE_1.8 | CORE_1.8 | D_GND | D_GND |
| V | OCMADDR 9 | OCMADDR 10 | OCMADDR 11 | OCMADDR 12 | | | | | | | | | |
| W | OCMADDR 6 | OCMADDR 7 | OCMADDR 8 | IO_3.3 | | | | | | | | | |
| Y | OCMADDR 3 | OCMADDR 4 | OCMADDR 5 | IO_3.3 | | | | | | | | | |
| AA | OCMADDR 0 | OCMADDR 1 | OCMADDR 2 | IO_3.3 | | | | | | | | | |
| AB | OCMDATA13 | OCMDATA14 | OCMDATA15 | IO_3.3 | | | | | | | | | |
| AC | OCMDATA10 | OCMDATA11 | OCMDATA12 | IO_3.3 | GPIO_G09_ B2 (DEGRN0) | IO_3.3 | DCLK | IO_3.3 | GPIO_G07_ B2 (DERED4) | IO_3.3 | SHIELD[1] (DEGRN3) | LVDSB_3.3 | [illegible] |
| AD | OCMDATA9 | OCMDATA6 | OCMDATA3 | OCMDATA0 | GPIO_G09_ B3 (DEGRN1) | GPIO_G08_ B0 (DORED0) | DEN | GPIO_G08_ B5 (DOBLU1) | GPIO_G07_ B3 (DERED5) | GPIO_G07_ B6 (DERED8) | SHIELD[2] (DEGRN4) | LVDSB_3.3 | LVDSB_3.3 |
| AE | OCMDATA8 | OCMDATA5 | OCMDATA2 | GPIO_G09_ B0 (DERED0) | GPIO_G09_ B4 (DEBLU0) | GPIO_G08_ B1 (DORED1) | GPIO_G08_ B3 (DOGRN1) | GPIO_G07_ B0 (DERED2) | GPIO_G07_ B4 (DERED6) | GPIO_G07_ B7 (DERED9) | SHIELD[3] (DEGRN5) | BC+ (DEGRN8) | SHIELD[4] (DEBLU2) |
| AF | OCMDATA7 | OCMDATA4 | OCMDATA1 | GPIO_G09_ B1 (DERED1) | GPIO_G09_ B5 (DEBLU1) | GPIO_G08_ B2 (DOGRN0) | GPIO_G08_ B4 (DOBLU0) | GPIO_G07_ B1 (DERED3) | GPIO_G07_ B5 (DERED7) | SHIELD[0] (DEGRN2) | B3+ (DEGRN6) | B3- (DEGRN7) | BC- (DEGRN9) |

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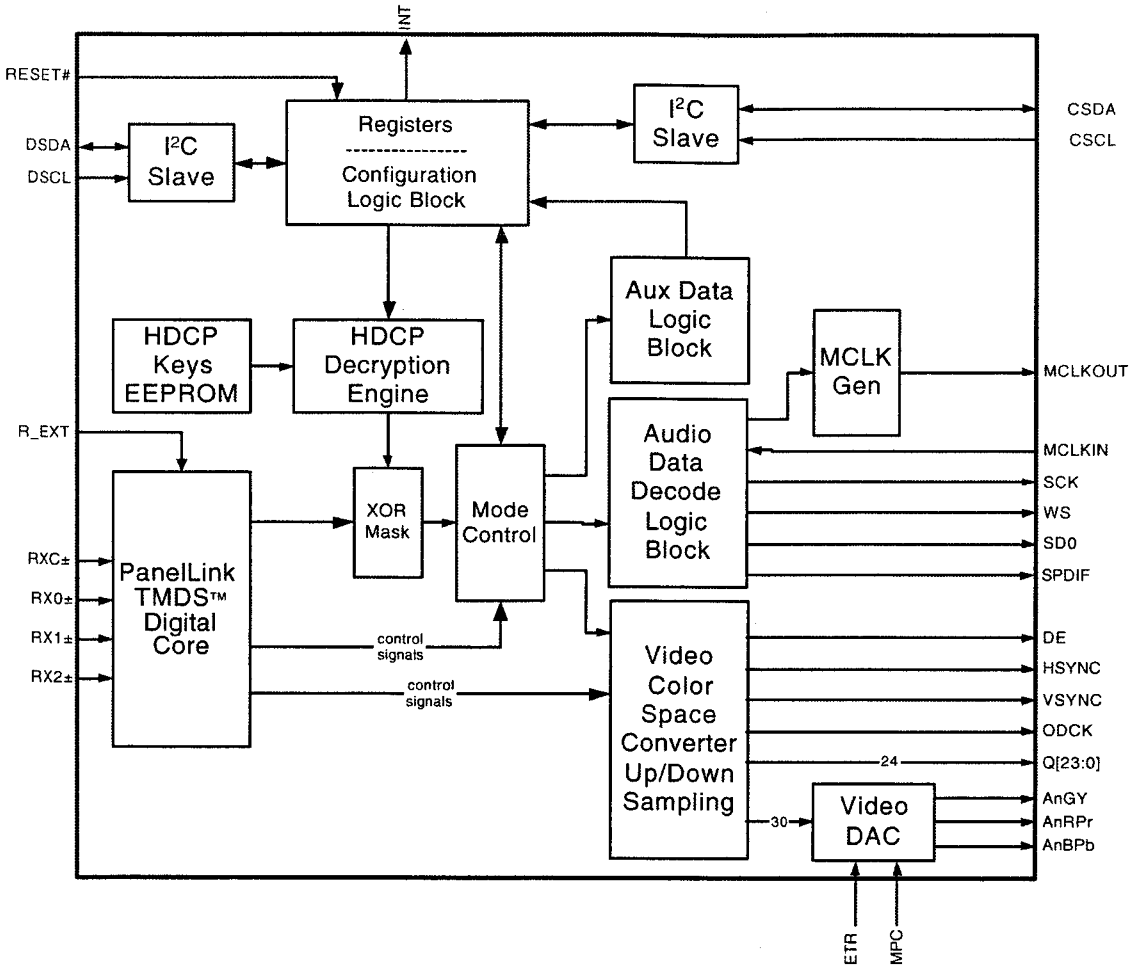
Figure 9-7 Internal Block Diagram and Pin Configuration

### 9.13.3 Diagram A12, Type S9993CT (IC7808)

BLOCK DIAGRAM


INT
RESET#
DSDA
DSCL
I²C Slave
Registers
Configuration Logic Block
I²C Slave
CSDA
CSCL
Aux Data Logic Block
MCLK Gen
MCLKOUT
HDCP Keys EEPROM
HDCP Decryption Engine
R_EXT
Audio Data Decode Logic Block
MCLKIN
SCK
WS
SD0
SPDIF
RXC±
RX0±
RX1±
RX2±
PanelLink TMDS™ Digital Core
XOR Mask
Mode Control
control signals
control signals
Video Color Space Converter Up/Down Sampling
DE
HSYNC
VSYNC
ODCK
24
Q[23:0]
30
Video DAC
AnGY
AnRPr
AnBPb
SETR
OMPC

PIN CONFIGURATION

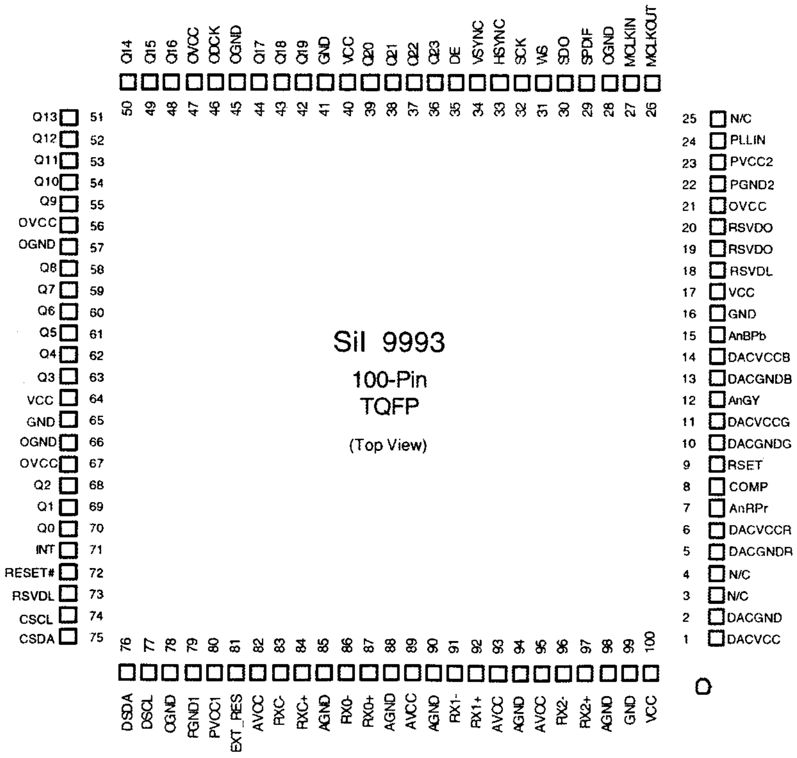

Q14 50
Q15 49
Q16 48
OVCC 47
ODCK 46
OGND 45
Q17 44
Q18 43
Q19 42
GND 41
VCC 40
Q20 39
Q21 38
Q22 37
Q23 36
DE 35
VSYNC 34
HSYNC 33
SCK 32
WS 31
SDO 30
SPDIF 29
OGND 28
MCLKIN 27
MCLKOUT 26
Q13 51
Q12 52
Q11 53
Q10 54
Q9 55
OVCC 56
OGND 57
Q8 58
Q7 59
Q6 60
Q5 61
Q4 62
Q3 63
VCC 64
GND 65
OGND 66
OVCC 67
Q2 68
Q1 69
Q0 70
INT 71
RESET# 72
RSVDL 73
CSCL 74
CSDA 75
25 N/C
24 PLLIN
23 PVCC2
22 PGND2
21 OVCC
20 RSVDO
19 RSVDO
18 RSVDL
17 VCC
16 GND
15 AnBPb
14 DACVCCB
13 DACGNDB
12 AnGY
11 DACVCCG
10 DACGNDG
9 RSET
8 COMP
7 AnRPr
6 DACVCCR
5 DACGNDR
4 N/C
3 N/C
2 DACGND
1 DACVCC
Sil 9993
100-Pin TQFP
(Top View)
76 DSDA
77 DSCL
78 OGND
79 PGND1
80 PVCC1
81 EXT_RES
82 AVCC
83 RXC-
84 RXC+
85 AGND
86 RX0-
87 RX0+
88 AGND
89 AVCC
90 AGND
91 RX1-
92 RX1+
93 AVCC
94 AGND
95 AVCC
96 RX2-
97 RX2+
98 AGND
99 GND
100 VCC

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Figure 9-8 Internal Block Diagram

# 10. Spare Parts List

## Set Level

### Various

| | | |
|---|---|---|
| 1099▲ | 9322 194 30682 | TFT-LCD LC230W01 |
| 8301 | 3139 131 03961 | FFC Foil 20P |
| 8403▲ | 3139 131 03581 | Cable 20P |
| 8990 | 3139 131 03861 | Cable 12P |

## TV Scalerboard [A]

### Various

| | | |
|---|---|---|
| 1001 | 2422 543 01255 | Crystal 24.576MHz |
| 1005 | 2422 025 18249 | 45P Female |
| 1302▲ | 3139 147 19701 | UR1316/A I H-3 |
| 1303 | 2422 025 16835 | 3P Male |
| 1304 | 2422 025 16835 | 3P Male |
| 1328 | 2422 549 44372 | Filter K3953L |
| 1330 | 2422 549 44369 | Filter K9656L |
| 1401 | 2422 543 01133 | Crystal 14.32MHz |
| 1704 | 2422 025 16543 | 4P Male |
| 1910 | 2422 025 16705 | 12P Male |
| 8910 | 3139 110 28271 | Cable 12P |

—||—

| | | |
|---|---|---|
| 2000 | 3198 017 41050 | 1µF 10V 0603 |
| 2001 | 2020 552 96718 | 220nF 10% 6.3V 0402 |
| 2002 | 2020 021 91679 | 100µF 20% 6.3V |
| 2004 | 2020 552 96718 | 220nF 10% 6.3V 0402 |
| 2005 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2006 | 3198 034 08280 | 8.2pF 50V 0402 |
| 2007 | 3198 034 08280 | 8.2pF 50V 0402 |
| 2008 | 3198 017 44740 | 470nF 10V 0603 |
| 2009 | 3198 017 41050 | 1µF 10V 0603 |
| 2010 | 3198 035 26820 | 6.8nF 10% 16V 0402 |
| 2011 | 2020 552 96718 | 220nF 10% 6.3V 0402 |
| 2012 | 2020 021 91557 | 100µF 20% 16V |
| 2013 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2014 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2015 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2016 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2017 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2018 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2019 | 2020 021 91617 | 47µF 20% 16V |
| 2020 | 2238 869 15101 | 100pF 5% 50V 0402 |
| 2021 | 2020 552 96628 | 10nF 10% 16V 0402 |
| 2022 | 3198 035 02210 | 220pF 5% 50V 0402 |
| 2023 | 2020 552 96718 | 220nF 10% 6.3V 0402 |
| 2024 | 2020 021 91557 | 100µF 20% 16V |
| 2025 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2026 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2027 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2028 | 2020 552 96628 | 10nF 10% 16V 0402 |
| 2029 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2030 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2031 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2032 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2033 | 2020 552 96718 | 220nF 10% 6.3V 0402 |
| 2034 | 2020 552 00002 | 3.3nF 2% 50V 0805 |
| 2035 | 4822 124 12095 | 100µF 20% 16V |
| 2040 | 2020 021 91616 | 10µF |
| 2041 | 2020 552 96718 | 220nF 10% 6.3V 0402 |
| 2042 | 2020 552 00002 | 3.3nF 2% 50V 0805 |
| 2043 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2044 | 2020 552 96718 | 220nF 10% 6.3V 0402 |
| 2045 | 2020 552 96628 | 10nF 10% 16V 0402 |
| 2046 | 3198 017 41050 | 1µF 10V 0603 |
| 2048 | 2020 552 96834 | 1µF 20% 6.3V 0402 |
| 2052 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2053 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2054 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2055 | 4822 126 14519 | 22pF 5% 50V 0402 |
| 2060 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2061 | 2020 021 91616 | 10µF 16V |
| 2062 | 2020 552 00002 | 3.3nF 2% 50V 0805 |
| 2063 | 3198 017 31540 | 150nF 10V 0603 |
| 2068 | 2020 552 96718 | 220nF 10% 6.3V 0402 |
| 2071 | 2020 021 91557 | 100µF 20% 16V |
| 2072 | 2020 552 96718 | 220nF 10% 6.3V 0402 |
| 2073 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2074 | 2020 552 96718 | 220nF 10% 6.3V 0402 |
| 2076 | 2020 552 96718 | 220nF 10% 6.3V 0402 |
| 2077 | 2020 552 96834 | 1µF 20% 6.3V 0402 |
| 2078 | 2238 869 15101 | 100pF 5% 50V 0402 |
| 2079 | 2020 552 96632 | 22nF 10% 16V 0402 |
| 2082 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2083 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2084 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2085 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2086 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2087 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2089 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2099 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2302 | 4822 122 33761 | 22pF 5% 50V |
| 2303 | 4822 122 33761 | 22pF 5% 50V |
| 2307 | 3198 024 44730 | 47nF 50V 0603 |
| 2308 | 3198 030 82280 | 2.2µF 20% 50V |
| 2309 | 2020 021 91871 | 470µF 16V |
| 2311 | 2020 021 91557 | 100µF 20% 16V |
| 2313 | 3198 016 31020 | 1nF 25V 0603 |
| 2314 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2317 | 3198 016 31020 | 1nF 25V 0603 |
| 2318 | 3198 016 31020 | 1nF 25V 0603 |
| 2321 | 5322 126 11583 | 10nF 10% 50V 0603 |
| 2324 | 5322 126 11583 | 10nF 10% 50V 0603 |
| 2355 | 2020 021 91601 | 470µF 50V |
| 2356 | 2020 021 91601 | 470µF 50V |
| 2357 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2358 | 3198 035 03320 | 3.3nF 5% 50V 0402 |
| 2359 | 2020 552 96628 | 10nF 10% 16V 0402 |
| 2370 | 2020 552 96834 | 1µF 20% 6.3V 0402 |
| 2371 | 2020 552 96834 | 1µF 20% 6.3V 0402 |
| 2372 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2373 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2374 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2375 | 2020 021 91616 | 10µF 16V |
| 2376 | 3198 017 41050 | 1µF 10V 0603 |
| 2377 | 3198 017 41050 | 1µF 10V 0603 |
| 2378 | 2020 552 96718 | 220nF 10% 6.3V 0402 |
| 2379 | 2020 552 96718 | 220nF 10% 6.3V 0402 |
| 2380 | 2020 021 91617 | 47µF 20% 16V |
| 2381 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2382 | 2020 021 91871 | 470µF 16V |
| 2386 | 3198 017 41050 | 1µF 10V 0603 |
| 2387 | 4822 126 14324 | 33pF 5% 50V 0402 |
| 2388 | 4822 126 14324 | 33pF 5% 50V 0402 |
| 2389 | 2020 012 93761 | 330µF 6.3V |
| 2392 | 3198 017 41050 | 1µF 10V 0603 |
| 2394 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2395 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2396 | 4822 124 23002 | 10µF 16V |
| 2397 | 2020 552 96834 | 1µF 20% 6.3V 0402 |
| 2398 | 2020 552 96834 | 1µF 20% 6.3V 0402 |
| 2401 | 4822 124 80151 | 47µF 16V |
| 2402 | 4822 124 80151 | 47µF 16V |
| 2403 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2404 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2405 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2406 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2407 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2408 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2409 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2410 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2411 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2412 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2413 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2414 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2415 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2416 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2417 | 4822 124 80151 | 47µF 16V |
| 2418 | 4822 124 80151 | 47µF 16V |
| 2419 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2420 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2421 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2422 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2423 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2424 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2425 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2426 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2427 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2428 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2429 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2430 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2431 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2432 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2433 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2434 | 4822 124 80151 | 47µF 16V |
| 2435 | 4822 124 80151 | 47µF 16V |
| 2436 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2437 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2438 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2439 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2440 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2441 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2442 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2443 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2444 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2445 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2446 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2447 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2448 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2449 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2450 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2451 | 4822 124 80151 | 47µF 16V |
| 2452 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2453 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2454 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2455 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2456 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2457 | 2020 552 96675 | 10µF 10% 16V 1210 |
| 2461 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2462 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2463 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2464 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2465 | 5322 124 41945 | 22µF 20% 35V |
| 2466 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2467 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2468 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2469 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2470 | 5322 124 41945 | 22µF 20% 35V |
| 2471 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2472 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2473 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2474 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2475 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2476 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2477 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2478 | 5322 124 41945 | 22µF 20% 35V |
| 2479 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2480 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2481 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2482 | 5322 124 41945 | 22µF 20% 35V |
| 2483 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2484 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2485 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2486 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2487 | 4822 126 14519 | 22pF 5% 50V 0402 |
| 2488 | 4822 126 14519 | 22pF 5% 50V 0402 |
| 2490 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2491 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2492 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2495 | 4822 124 80151 | 47µF 16V |
| 2496 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2501 | 4822 124 80151 | 47µF 16V |
| 2502 | 4822 124 11131 | 47µF 6.3V |
| 2503 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2504 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2505 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2506 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2507 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2508 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2509 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2510 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2511 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2512 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2513 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2514 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2515 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2516 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2517 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2530 | 4822 124 23002 | 10µF 16V |
| 2531 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2532 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2533 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2560 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2561 | 4822 124 12095 | 100µF 20% 16V |
| 2562 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2563 | 3198 035 14720 | 4.7nF 5% 25V 0402 |
| 2564 | 2020 552 96656 | 10µF 20% 25V 1210 |
| 2601 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2605 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2606 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2607 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2608 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2609 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2610 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2611 | 4822 124 11131 | 47µF 6.3V |
| 2612 | 2020 552 96628 | 10nF 10% 16V 0402 |
| 2613 | 2020 552 96628 | 10nF 10% 16V 0402 |
| 2614 | 2020 552 96628 | 10nF 10% 16V 0402 |
| 2615 | 2020 552 96628 | 10nF 10% 16V 0402 |
| 2616 | 2020 552 96628 | 10nF 10% 16V 0402 |

| | | |
|---|---|---|
| 2617 | 2020 552 96628 | 10nF 10% 16V 0402 |
| 2618 | 2020 552 96628 | 10nF 10% 16V 0402 |
| 2619 | 4822 126 14324 | 33pF 5% 50V 0402 |
| 2620 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2621 | 2020 552 96834 | 1µF 20% 6.3V 0402 |
| 2622 | 2020 552 96834 | 1µF 20% 6.3V 0402 |
| 2623 | 2020 552 96834 | 1µF 20% 6.3V 0402 |
| 2624 | 3198 017 44740 | 470nF 10V 0603 |
| 2625 | 3198 017 44740 | 470nF 10V 0603 |
| 2626 | 3198 017 44740 | 470nF 10V 0603 |
| 2630 | 2020 552 96834 | 1µF 20% 6.3V 0402 |
| 2631 | 2020 552 96834 | 1µF 20% 6.3V 0402 |
| 2632 | 2020 552 96834 | 1µF 20% 6.3V 0402 |
| 2633 | 2020 552 96834 | 1µF 20% 6.3V 0402 |
| 2634 | 2020 552 96834 | 1µF 20% 6.3V 0402 |
| 2635 | 2020 552 96834 | 1µF 20% 6.3V 0402 |
| 2636 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2638 | 3198 035 03310 | 330pF 5% 50V 0402 |
| 2639 | 3198 035 03310 | 330pF 5% 50V 0402 |
| 2702 | 2020 552 96834 | 1µF 20% 6.3V 0402 |
| 2703 | 2020 021 91616 | 10µF 16V |
| 2707 | 2020 021 91871 | 470µF 16V |
| 2708 | 2020 552 96834 | 1µF 20% 6.3V 0402 |
| 2710 | 3198 035 04710 | 470pF 50V 0402 |
| 2711 | 3198 035 04710 | 470pF 50V 0402 |
| 2712 | 2020 552 96834 | 1µF 20% 6.3V 0402 |
| 2713 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2714 | 2020 021 91871 | 470µF 16V |
| 2715 | 2020 021 91871 | 470µF 16V |
| 2718 | 2020 552 96834 | 1µF 20% 6.3V 0402 |
| 2719 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2735 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2736 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2737 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2738 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2739 | 3198 035 04710 | 470pF 50V 0402 |
| 2740 | 3198 035 04710 | 470pF 50V 0402 |
| 2741 | 3198 035 04710 | 470pF 50V 0402 |
| 2742 | 3198 035 04710 | 470pF 50V 0402 |
| 2743 | 2020 552 96834 | 1µF 20% 6.3V 0402 |
| 2744 | 2020 552 96834 | 1µF 20% 6.3V 0402 |
| 2745 | 2020 021 91557 | 100µF 20% 16V |
| 2746 | 3198 017 41050 | 1µF 10V 0603 |
| 2847 | 3198 017 41050 | 1µF 10V 0603 |
| 2848 | 3198 017 41050 | 1µF 10V 0603 |
| 2860 | 2238 869 15189 | 18pF 5% 50V 0402 |
| 2861 | 2238 869 15189 | 18pF 5% 50V 0402 |
| 2862 | 2238 869 15189 | 18pF 5% 50V 0402 |
| 2863 | 2238 869 15189 | 18pF 5% 50V 0402 |
| 2864 | 2238 869 15189 | 18pF 5% 50V 0402 |
| 2865 | 2238 869 15189 | 18pF 5% 50V 0402 |
| 2866 | 2238 869 15189 | 18pF 5% 50V 0402 |
| 2867 | 2238 869 15189 | 18pF 5% 50V 0402 |
| 2868 | 2238 869 15189 | 18pF 5% 50V 0402 |
| 2869 | 2238 869 15189 | 18pF 5% 50V 0402 |
| 2909 | 2020 021 90913 | 330µF 10V 10V |
| 2910 | 3198 035 04710 | 470pF 50V 0402 |
| 2911 | 3198 030 72290 | 22µF 20% 35V |
| 2920 | 4822 124 80151 | 47µF 16V |
| 2921 | 4822 124 80151 | 47µF 16V |
| 2930 | 2020 021 91871 | 470µF 16V |
| 2931 | 3198 035 04710 | 470pF 50V 0402 |
| 2933 | 2020 021 91871 | 470µF 16V |
| 2934 | 2020 552 96793 | 4.7nF 10% 50V 0402 |
| 2935 | 2020 021 91871 | 470µF 16V |
| 2937 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2938 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2939 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2940 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2941 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2942 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2953 | 2020 021 91871 | 470µF 16V |
| 2955 | 3198 035 14720 | 4.7nF 5% 25V 0402 |
| 2956 | 3198 035 02210 | 220pF 5% 50V 0402 |
| 2957 | 2020 021 91871 | 470µF 16V |
| 2958 | 2020 021 91871 | 470µF 16V |
| 2959 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2960 | 4822 124 80151 | 47µF 16V |
| 2961 | 3198 035 71030 | 10nF 16V 0402 |
| 2962 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2964 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2965 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2966 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2968 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2969 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2970 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2992 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2993 | 2020 552 96618 | 1nF 10% 50V 0402 |
| 2994 | 2020 021 91871 | 470µF 16V |
| 2995 | 3198 035 71040 | 100nF 10% 16V 0402 |
| 2996 | 4822 124 80151 | 47µF 16V |

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| | | |
|---|---|---|
| 3000 | 3198 031 04720 | 4.7kΩ 5% 0402 |
| 3001 | 2322 702 70398 | 22kΩ 0603 |
| 3002 | 4822 117 13601 | 22kΩ 5% 0402 |
| 3003 | 2322 702 70398 | 3.9Ω |
| 3004 | 4822 117 13601 | 22kΩ 5% 0402 |
| 3005 | 3198 031 08210 | 820Ω 5% 0,5W |
| 3006 | 4822 117 13545 | 100Ω 1% 0402 |
| 3007 | 3198 031 04720 | 4.7kΩ 5% 0402 |
| 3008 | 3198 031 04730 | 47Ω 5% 0402 |
| 3009 | 4822 117 11297 | 100kΩ 5% 0.1W |
| 3010 | 4822 117 13548 | 1kΩ 5% 0402 |
| 3012 | 3198 031 04730 | 47Ω 5% 0402 |
| 3013 | 4822 117 13545 | 100Ω 1% 0402 |
| 3014 | 4822 117 13543 | 470Ω 5% 0402 |
| 3015 | 4822 117 13605 | Jumper 0402 |
| 3016 | 4822 117 13545 | 100Ω 1% 0402 |
| 3017 | 4822 117 13605 | Jumper 0402 |
| 3019 | 4822 117 13545 | 100Ω 1% 0402 |
| 3020 | 4822 117 13548 | 1kΩ 5% 0402 |
| 3021 | 2322 706 72702 | 2.7kΩ 1% 0402 |
| 3022 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3023 | 4822 117 13602 | 2.2kΩ 5% 0.01W 0402 |
| 3024 | 3198 031 04720 | 4.7kΩ 5% 0402 |
| 3025 | 2322 706 75603 | 56kΩ 1% 0402 |
| 3026 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3027 | 3198 031 04720 | 4.7kΩ 5% 0402 |
| 3028 | 4822 117 11297 | 100kΩ 5% 0.1W |
| 3029 | 4822 117 13548 | 1kΩ 5% 0402 |
| 3030 | 4822 117 11297 | 100kΩ 5% 0.1W |
| 3031 | 3198 031 04730 | 47Ω 5% 0402 |
| 3032 | 3198 031 02240 | 220kΩ 5% 0.1W 0402 |
| 3033 | 3198 031 04730 | 47Ω 5% 0402 |
| 3035 | 4822 117 13545 | 100Ω 1% 0402 |
| 3048 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3049 | 4822 117 13545 | 100Ω 1% 0402 |
| 3050 | 4822 117 13545 | 100Ω 1% 0402 |
| 3051 | 4822 117 13545 | 100Ω 1% 0402 |
| 3052 | 4822 117 13605 | Jumper 0402 |
| 3054 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3057 | 2322 706 78201 | 820Ω 0402 |
| 3058 | 4822 117 13543 | 470Ω 5% 0402 |
| 3059 | 4822 117 13548 | 1kΩ 5% 0402 |
| 3060 | 3198 031 03930 | 39kΩ 5% 0402 |
| 3061 | 3198 031 01820 | 1.8kΩ 5% 0.01W 0402 |
| 3062 | 4822 117 13605 | Jumper 0402 |
| 3063 | 4822 117 13548 | 1kΩ 5% 0402 |
| 3064 | 4822 117 13545 | 100Ω 1% 0402 |
| 3065 | 3198 031 04720 | 4.7kΩ 5% 0402 |
| 3066 | 3198 031 04720 | 4.7kΩ 5% 0402 |
| 3067 | 4822 117 13545 | 100Ω 1% 0402 |
| 3068 | 4822 117 13548 | 1kΩ 5% 0402 |
| 3069 | 4822 117 13548 | 1kΩ 5% 0402 |
| 3070 | 4822 117 13545 | 100Ω 1% 0402 |
| 3071 | 4822 117 13545 | 100Ω 1% 0402 |
| 3073 | 3198 031 01530 | 15kΩ 5% 0.01W 0402 |
| 3074 | 4822 117 11297 | 100kΩ 5% 0.1W |
| 3075 | 3198 031 04720 | 4.7kΩ 5% 0402 |
| 3076 | 3198 031 06810 | 680Ω 5% 0.01W 0402 |
| 3077 | 3198 031 04720 | 4.7kΩ 5% 0402 |
| 3078 | 3198 031 04720 | 4.7kΩ 5% 0402 |
| 3079 | 3198 031 04720 | 4.7kΩ 5% 0402 |
| 3080 | 2322 704 61002 | 1kΩ 1% |
| 3081 | 4822 117 13545 | 100Ω 1% 0402 |
| 3082 | 3198 031 04720 | 4.7kΩ 5% 0402 |
| 3083 | 3198 031 04720 | 4.7kΩ 5% 0402 |
| 3084 | 4822 117 13545 | 100Ω 1% 0402 |
| 3085 | 3198 031 04720 | 4.7kΩ 5% 0402 |
| 3086 | 4822 117 13602 | 2.2kΩ 5% 0.01W 0402 |
| 3087 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3088 | 3198 031 03320 | 3.3kΩ 5% 0402 |
| 3089 | 3198 031 01540 | 150kΩ 5% 0402 |
| 3091 | 4822 117 13545 | 100Ω 1% 0402 |
| 3092 | 3198 031 04720 | 4.7kΩ 5% 0402 |
| 3093 | 3198 031 04720 | 4.7kΩ 5% 0402 |
| 3094 | 3198 031 01090 | 10Ω 5% 0.01W 0402 |
| 3096 | 3198 031 03320 | 3.3kΩ 5% 0402 |
| 3097 | 3198 031 04720 | 4.7kΩ 5% 0402 |
| 3098 | 4822 117 13601 | 22kΩ 5% 0402 |
| 3302 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3303 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3304 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3305 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3309 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3311 | 4822 051 30103 | 10kΩ 5% 0.062W |
| 3314 | 4822 117 13632 | 100kΩ 1% 0603 0.62W |
| 3315 | 4822 051 30154 | 150kΩ 5% 0.062W |
| 3316 | 4822 117 12968 | 820Ω 5% 0.62W |
| 3317 | 4822 051 30561 | 560Ω 5% 0.062W |
| 3319 | 4822 051 30273 | 27kΩ 5% 0.062W |
| 3320 | 4822 051 30183 | 18kΩ 5% 0.062W |

| | | |
|---|---|---|
| 3321 | 4822 051 30222 | 2.2kΩ 5% 0.062W |
| 3322 | 4822 051 30682 | 6.8Ω 5% 0.062W |
| 3323 | 4822 051 30222 | 2.2kΩ 5% 0.062W |
| 3327 | 4822 117 13548 | 1kΩ 5% 0402 |
| 3328 | 4822 117 13545 | 100Ω 1% 0402 |
| 3329 | 4822 117 13545 | 100Ω 1% 0402 |
| 3357 | 4822 117 13548 | 1kΩ 5% 0402 |
| 3358 | 4822 117 13545 | 100Ω 1% 0402 |
| 3359 | 3198 031 03910 | 390Ω 1% 0402 |
| 3370 | 3198 031 06810 | 680Ω 5% 0.01W 0402 |
| 3371 | 4822 117 13545 | 100Ω 1% 0402 |
| 3372 | 4822 117 13545 | 100Ω 1% 0402 |
| 3374 | 5322 117 11726 | 10Ω 5% |
| 3378 | 4822 117 13545 | 100Ω 1% 0402 |
| 3380 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3381 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3382 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3383 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3386 | 4822 117 13545 | 100Ω 1% 0402 |
| 3389 | 4822 117 13545 | 100Ω 1% 0402 |
| 3390 | 4822 117 13545 | 100Ω 1% 0402 |
| 3391 | 4822 117 13545 | 100Ω 1% 0402 |
| 3392 | 4822 117 13545 | 100Ω 1% 0402 |
| 3393 | 4822 117 13545 | 100Ω 1% 0402 |
| 3394 | 3198 031 07590 | 75Ω 5% 0402 |
| 3401 | 3198 031 13390 | 33Ω |
| 3402 | 3198 031 13390 | 33Ω |
| 3403 | 3198 031 13390 | 33Ω |
| 3404 | 3198 031 13390 | 33Ω |
| 3405 | 3198 031 13390 | 33Ω |
| 3406 | 3198 031 13390 | 33Ω |
| 3407 | 3198 031 13390 | 33Ω |
| 3408 | 3198 031 13390 | 33Ω |
| 3409 | 3198 031 13390 | 33Ω |
| 3410 | 3198 031 13390 | 33Ω |
| 3411 | 3198 031 13390 | 33Ω |
| 3412 | 3198 031 13390 | 33Ω |
| 3413 | 3198 031 13390 | 33Ω |
| 3414 | 3198 031 03390 | 33Ω 1% 0402 |
| 3422 | 3198 031 03390 | 33Ω 1% 0402 |
| 3423 | 3198 031 03320 | 3.3kΩ 5% 0402 |
| 3424 | 2322 704 61501 | 150Ω 1% 0603 |
| 3425 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3426 | 3198 031 03320 | 3.3kΩ 5% 0402 |
| 3432 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3433 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3434 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3436 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3437 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3438 | 3198 031 11030 | 10kΩ 5% 1206 |
| 3439 | 3198 031 11030 | 10kΩ 5% 1206 |
| 3440 | 3198 031 11030 | 10kΩ 5% 1206 |
| 3441 | 3198 031 11030 | 10kΩ 5% 1206 |
| 3442 | 3198 031 11030 | 10kΩ 5% 1206 |
| 3443 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3444 | 3198 031 04730 | 47Ω 5% 0402 |
| 3446 | 5322 117 13017 | 100Ω 1% 0.063W 0603 |
| 3447 | 3198 031 03390 | 33Ω 1% 0402 |
| 3448 | 3198 031 01090 | 10Ω 5% 0.01W 0402 |
| 3450 | 3198 031 04730 | 47Ω 5% 0402 |
| 3451 | 3198 031 04720 | 4.7kΩ 5% 0402 |
| 3452 | 3198 031 04720 | 4.7kΩ 5% 0402 |
| 3501 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3502 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3503 | 2322 704 61501 | 150Ω 1% 0603 |
| 3531 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3532 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3534 | 4822 117 13548 | 1kΩ 5% 0402 |
| 3536 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3538 | 3198 031 11030 | 10kΩ 5% 1206 |
| 3539 | 3198 031 11030 | 10kΩ 5% 1206 |
| 3540 | 3198 031 11030 | 10kΩ 5% 1206 |
| 3544 | 3198 031 11030 | 10kΩ 5% 1206 |
| 3545 | 3198 031 11030 | 10kΩ 5% 1206 |
| 3546 | 3198 031 11030 | 10kΩ 5% 1206 |
| 3547 | 3198 031 11030 | 10kΩ 5% 1206 |
| 3548 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3551 | 4822 051 30008 | Jumper 0603 |
| 3560 | 4822 117 11297 | 100kΩ 5% 0.1W |
| 3561 | 4822 117 11297 | 100kΩ 5% 0.1W |
| 3562 | 4822 117 11297 | 100kΩ 5% 0.1W |
| 3563 | 4822 117 13548 | 1kΩ 5% 0402 |
| 3564 | 4822 117 13548 | 1kΩ 5% 0402 |
| 3565 | 3198 031 01220 | 1.2kΩ 5% 0.01W 0402 |
| 3566 | 4822 117 13548 | 1kΩ 5% 0402 |
| 3605 | 4822 117 13545 | 100Ω 1% 0402 |
| 3606 | 4822 117 13545 | 100Ω 1% 0402 |
| 3607 | 4822 117 13545 | 100Ω 1% 0402 |
| 3608 | 4822 117 13545 | 100Ω 1% 0402 |
| 3609 | 4822 117 13545 | 100Ω 1% 0402 |
| 3610 | 4822 117 13601 | 22kΩ 5% 0402 |
| 3612 | 4822 117 13543 | 470Ω 5% 0402 |
| 3613 | 3198 031 02290 | 22Ω 5% 0.1W 0402 |
| 3614 | 3198 031 02290 | 22Ω 5% 0.1W 0402 |

| | | |
|---|---|---|
| 3615 | 3198 031 02290 | 22Ω 5% 0.1W 0402 |
| 3616 | 3198 031 02290 | 22Ω 5% 0.1W 0402 |
| 3617 | 3198 031 02290 | 22Ω 5% 0.1W 0402 |
| 3618 | 3198 031 02290 | 22Ω 5% 0.1W 0402 |
| 3619 | 3198 031 08210 | 820Ω 5% 0,5W |
| 3620 | 4822 117 13632 | 100kΩ 1% 0603 0.62W |
| 3621 | 4822 117 13601 | 22kΩ 5% 0402 |
| 3622 | 4822 117 13601 | 22kΩ 5% 0402 |
| 3623 | 4822 117 13601 | 22kΩ 5% 0402 |
| 3624 | 4822 117 13601 | 22kΩ 5% 0402 |
| 3625 | 4822 117 13601 | 22kΩ 5% 0402 |
| 3626 | 4822 117 13601 | 22kΩ 5% 0402 |
| 3633 | 4822 117 13545 | 100Ω 1% 0402 |
| 3634 | 4822 117 13545 | 100Ω 1% 0402 |
| 3635 | 4822 117 13545 | 100Ω 1% 0402 |
| 3640 | 4822 117 13602 | 2.2kΩ 5% 0.01W 0402 |
| 3641 | 4822 117 13597 | 330Ω 5% 0402 0.01W |
| 3642 | 4822 117 13597 | 330Ω 5% 0402 0.01W |
| 3643 | 4822 117 13597 | 330Ω 5% 0402 0.01W |
| 3644 | 4822 117 13597 | 330Ω 5% 0402 0.01W |
| 3645 | 4822 117 13597 | 330Ω 5% 0402 0.01W |
| 3646 | 4822 117 13597 | 330Ω 5% 0402 0.01W |
| 3703 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3706 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3711 | 4822 117 13605 | Jumper 0402 |
| 3712 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3714 | 3198 031 08220 | 8.2kΩ 5% 0.5W |
| 3715 | 3198 031 01820 | 1.8kΩ 5% 0.01W 0402 |
| 3717 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3718 | 4822 117 13605 | Jumper 0402 |
| 3719 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3722 | 3198 031 08220 | 8.2kΩ 5% 0.5W |
| 3725 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3726 | 3198 031 08220 | 8.2kΩ 5% 0.5W |
| 3727 | 3198 031 01820 | 1.8kΩ 5% 0.01W 0402 |
| 3730 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3731 | 4822 117 13543 | 470Ω 5% 0402 |
| 3732 | 4822 117 13548 | 1kΩ 5% 0402 |
| 3733 | 4822 117 13543 | 470Ω 5% 0402 |
| 3735 | 3198 031 02280 | 2.2Ω 5% 0.1W 0402 |
| 3736 | 3198 031 02280 | 2.2Ω 5% 0.1W 0402 |
| 3737 | 3198 031 02280 | 2.2Ω 5% 0.1W 0402 |
| 3738 | 3198 031 02280 | 2.2Ω 5% 0.1W 0402 |
| 3739 | 4822 117 13601 | 22kΩ 5% 0402 |
| 3740 | 4822 117 13601 | 22kΩ 5% 0402 |
| 3741 | 4822 117 11297 | 100kΩ 5% 0.1W |
| 3742 | 4822 117 13601 | 22kΩ 5% 0402 |
| 3743 | 4822 117 13601 | 22kΩ 5% 0402 |
| 3744 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3745 | 4822 117 11297 | 100kΩ 5% 0.1W |
| 3746 | 4822 117 11297 | 100kΩ 5% 0.1W |
| 3747 | 4822 117 11297 | 100kΩ 5% 0.1W |
| 3748 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3749 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3750 | 3198 031 06830 | 68kΩ 5% 0.01W 0402 |
| 3751 | 3198 031 06830 | 68kΩ 5% 0.01W 0402 |
| 3836 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3838 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3910 | 4822 117 13602 | 2.2kΩ 5% 0.01W 0402 |
| 3911 | 4822 117 13548 | 1kΩ 5% 0402 |
| 3930 | 4822 117 12917 | 1Ω 5% 0.062W |
| 3931 | 4822 117 12917 | 1Ω 5% 0.062W |
| 3932 | 2322 704 61002 | 1kΩ 1% |
| 3933 | 2322 704 63302 | 3.3kΩ 1% 0603 |
| 3951 | 4822 117 12917 | 1Ω 5% 0.062W |
| 3952 | 4822 117 12917 | 1Ω 5% 0.062W |
| 3953 | 2322 704 61002 | 1kΩ 1% |
| 3954 | 2322 704 63302 | 3.3kΩ 1% 0603 |
| 3955 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3958 | 3198 031 01530 | 15kΩ 5% 0.01W 0402 |
| 4xxx | 4822 117 13605 | Jumper 0402 |

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|---|---|---|
| 5001 | 2422 536 00667 | 1mF 20% |
| 5002 | 4822 157 11716 | Bead 30Ω 100MHz |
| 5003 | 4822 157 11716 | Bead 30Ω at 100MHz |
| 5004 | 4822 157 11716 | Bead 30Ω at 100MHz |
| 5005 | 4822 157 11716 | Bead 30Ω at 100MHz |
| 5006 | 4822 157 11716 | Bead 30Ω at 100MHz |
| 5007 | 4822 157 11716 | Bead 30Ω at 100MHz |
| 5008 | 4822 157 11716 | Bead 30Ω at 100MHz |
| 5010 | 3198 018 64790 | 47µH |
| 5060 | 4822 157 11716 | Bead 30Ω at 100MHz |
| 5070 | 4822 157 11716 | Bead 30Ω at 100MHz |
| 5071 | 2422 549 42896 | Bead 120Ω 100MHz |
| 5072 | 2422 549 42896 | Bead 120Ω 100MHz |
| 5304 | 4822 157 11499 | Bead 60Ω 100MHz |
| 5309 | 3198 018 31290 | 12µH 10% |
| 5321 | 3198 018 33970 | 0.39µH |
| 5324 | 4822 157 71334 | 0.68µH |
| 5370 | 4822 157 11716 | Bead 30Ω at 100MHz |
| 5371 | 4822 157 11716 | Bead 30Ω at 100MHz |
| 5372 | 2422 549 44197 | Bead 220Ω at 100MHz |
| 5530 | 2422 549 45333 | Bead 120Ω 100MHz |
| 5560 | 4822 157 11716 | Bead 30Ω at 100MHz |
| 5605 | 2422 549 45333 | Bead 120Ω 100MHz |
| 5607 | 2422 549 45333 | Bead 120Ω 100MHz |
| 5636 | 2422 549 45333 | Bead 120Ω 100MHz |
| 5646 | 2422 549 42896 | Bead 120Ω 100MHz |
| 5909 | 2422 549 45843 | 100MHZ |
| 5910 | 2422 536 00667 | 1000µF 20% 7032 |
| 5920 | 2422 549 45333 | Bead 120Ω 100MHz |
| 5930 | 2422 535 94134 | 10µH 20% 0805 |
| 5931 | 2422 536 00689 | 220µH |
| 5932 | 2422 535 94134 | 10µH 20% 0805 |
| 5952 | 2422 535 94134 | 10µH 20% 0805 |
| 5953 | 2422 536 00689 | 220µH |
| 5954 | 2422 535 94134 | 10µH 20% 0805 |
| 5956 | 2422 549 45333 | Bead 120Ω 100MHz |
| 5958 | 2422 549 45333 | Bead 120Ω 100MHz |
| 5959 | 2422 549 45333 | Bead 120Ω 100MHz |
| 5984 | 2422 549 45333 | Bead 120Ω 100MHz |
| 5985 | 2422 549 45333 | Bead 120Ω 100MHz |
| 5986 | 2422 549 45333 | Bead 120Ω 100MHz |
| 5987 | 2422 549 45333 | Bead 120Ω 100MHz |
| 5988 | 2422 549 45333 | Bead 120Ω 100MHz |
| 5989 | 2422 549 45333 | Bead 120Ω 100MHz |
| 5990 | 2422 549 45333 | Bead 120Ω 100MHz |
| 5991 | 2422 549 45333 | Bead 120Ω 100MHz |
| 5994 | 2422 549 45333 | Bead 120Ω 100MHz |
| 5996 | 2422 549 45333 | Bead 120Ω 100MHz |
| 5997 | 2422 549 45333 | Bead 120Ω 100MHz |
| 5998 | 2422 549 45333 | Bead 120Ω 100MHz |

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|---|---|---|
| 6001 | 4822 130 11397 | BAS316 |
| 6002 | 4822 130 11397 | BAS316 |
| 6005 | 9340 553 52115 | BAS321 |
| 6020 | 4822 130 11397 | BAS316 |
| 6021 | 4822 130 11397 | BAS316 |
| 6073 | 4822 130 80622 | BAT54 |
| 6076 | 4822 130 80622 | BAT54 |
| 6310 | 4822 130 11397 | BAS316 |
| 6323 | 4822 130 11525 | 1SS356 |
| 6328 | 4822 130 11416 | PDZ6.8B |
| 6329 | 4822 130 11416 | PDZ6.8B |
| 6563 | 9322 102 64685 | UDZ2.7B |
| 6564 | 4822 130 11416 | PDZ6.8B |
| 6604 | 4822 130 11397 | BAS316 |
| 6605 | 4822 130 11397 | BAS316 |
| 6634 | 9322 102 64685 | UDZ2.7B |
| 6635 | 9322 102 64685 | UDZ2.7B |
| 6640 | 9322 102 64685 | UDZ2.7B |
| 6910 | 5322 130 34337 | BAV99 |
| 6911 | 9340 548 71115 | PDZ33B |
| 6930 | 9322 128 70685 | SMSS14 |
| 6951 | 9322 128 70685 | SMSS14 |

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|---|---|---|
| 7001 | 9339 693 90135 | BCP69-25 |
| 7002 | 9340 425 20115 | BC847BS |
| 7003 | 9339 693 90135 | BCP69-25 |
| 7005 | 9340 547 13215 | BSH103 |
| 7011 | 9352 747 88557 | TDA12021H/N1B11 |
| 7012 | 3198 010 42310 | BC847BW |
| 7013 | 3198 010 42310 | BC847BW |
| 7014 | 3198 010 42310 | BC847BW |
| 7015 | 9322 208 05668 | NE555D |
| 7016 | 9322 208 05668 | NE555D |
| 7017 | 9322 208 05668 | NE555D |
| 7018 | 5322 130 60159 | BC846B |
| 7019 | 5322 130 60159 | BC846B |
| 7068 | 3198 010 42310 | BC847BW |
| 7070 | 9340 547 13215 | BSH103 |
| 7099 | 4822 209 17226 | M24C08-WMN6 |
| 7316 | 5322 130 42718 | BFS20 |
| 7320 | 3198 010 42310 | BC847BW |
| 7370 | 9340 550 49115 | PUMH7 |
| 7371 | 9340 550 49115 | PUMH7 |
| 7372 | 9340 550 49115 | PUMH7 |
| 7376 | 9340 425 10115 | BC857BS |
| 7377 | 9340 425 10115 | BC857BS |
| 7401 | 9322 206 86671 | GM1501-BD |
| 7449 | 3198 010 42310 | BC847BW |
| 7501 | 9322 199 17671 | K4D263238M-QC50 |
| 7530 | 9322 205 12671 | MX29LV040QC-70G |
| 7531 | 9322 156 81668 | M24C32-WMN6TNKSA |
| 7532 | 9352 691 71115 | NE56610-27GW |
| 7560 | 9352 334 10118 | TDA9178T/N1 |
| 7562 | 9322 199 24668 | L7808CD2T |
| 7563 | 4822 209 73852 | PMBT2369 |
| 7604 | 9352 607 39118 | 74LVC14APW |
| 7605 | 4822 209 60792 | 74HC4053D |
| 7606 | 9322 199 56668 | ADG781BCP |
| 7607 | 9322 199 80668 | SM5301BS-G |
| 7640 | 4822 130 11155 | PDTC114ET |
| 7702 | 9340 425 20115 | BC847BS |
| 7703 | 9340 425 20115 | BC847BS |
| 7706 | 9351 742 70118 | 74HC08PW |
| 7708 | 9340 550 49115 | PUMH7 |
| 7709 | 9322 206 09668 | TDA7297D |
| 7710 | 3198 010 42310 | BC847BW |
| 7740 | 9322 183 05668 | TS482ID |
| 7910 | 4822 130 42804 | BC817-25 |
| 7920 | 9322 163 24668 | L78M08CDT |
| 7930 | 5322 209 90529 | MC34063AD |
| 7952 | 5322 209 90529 | MC34063AD |
| 7954 | 9322 157 51685 | SI12301DS |
| 7955 | 4822 130 11155 | PDTC114ET |
| 7992 | 9322 142 88668 | LF25CDT |
| 7995 | 9322 189 19668 | LD1086D2T18 |

## Side AV/HP Panel [D]

### Various

| | | |
|---|---|---|
| 1301 | 2422 025 14531 | 20P Female |
| 1302 | 2422 025 04854 | 6P Female |
| 1306 | 2422 026 05059 | Conector Phone |
| 1307 | 4822 267 10484 | YKF51-5359 |
| 8540 | 3139 131 03641 | Cable 6P |

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| | | |
|---|---|---|
| 2301 | 3198 017 41050 | 1µF 10V 0603 |
| 2302 | 4822 126 14241 | 330pF 0603 50V |
| 2303 | 3198 017 41050 | 1µF 10V 0603 |
| 2304 | 4822 126 14241 | 330pF 0603 50V |
| 2305 | 4822 126 14241 | 330pF 0603 50V |
| 2306 | 4822 126 14241 | 330pF 0603 50V |
| 2326 | 3198 017 41050 | 1µF 10V 0603 |

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| | | |
|---|---|---|
| 3301 | 4822 051 30331 | 330Ω 5% 0.062W |
| 3302 | 4822 051 30339 | 33Ω 5% 0.062W |
| 3303 | 4822 051 30221 | 220Ω 5% 0.062W |
| 3304 | 4822 051 30223 | 22kΩ 5% 0.062W |
| 3305 | 4822 117 12925 | 47kΩ 1% 0.063W 0603 |
| 3306 | 4822 051 30759 | 75Ω 5% 0.062W |
| 3307 | 4822 051 30223 | 22kΩ 5% 0.062W |
| 3308 | 4822 117 12925 | 47kΩ 1% 0.063W 0603 |
| 3316 | 4822 051 30339 | 33Ω 5% 0.062W |
| 3318 | 4822 051 30151 | 150Ω 5% 0.062W |
| 3319 | 4822 051 30391 | 390Ω 5% 0.062W |
| 3320 | 4822 117 12903 | 1.8kΩ 1% 0.063W 0603 |
| 3321 | 4822 117 12968 | 820Ω 5% 0.62W |
| 3322 | 4822 051 30008 | Jumper 0603 |
| 3323 | 4822 051 30008 | Jumper 0603 |
| 3325 | 4822 051 30759 | 75Ω 5% 0.062W |
| 3326 | 4822 051 30102 | 1kΩ 5% 0.062W |
| 3327 | 4822 117 13632 | 100kΩ 1% 0603 0.62W |
| 3328 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3329 | 4822 051 30563 | 56kΩ 5% 0.062W |
| 4xxx | 4822 051 30008 | Jumper 0603 |

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|---|---|---|
| 6306 | 4822 130 11148 | UDZ4.7B |

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|---|---|---|
| 7326 | 4822 130 60373 | BC856B |

## IO Panel [H]

### Various

| | | |
|---|---|---|
| 1101 | 2422 025 14911 | 21p Female |
| 1102 | 2422 025 14911 | 21p Female |
| 1103 | 2422 025 18249 | 45P Female |
| 1104 | 2422 025 14551 | 20P Female |
| 1105 | 4822 267 31014 | Socket headphone |
| 1680 | 2422 033 00007 | Socket DVI 24P |
| 1687 | 2438 031 00416 | Connector 15P Female |
| 1688 | 4822 267 31014 | Socket headphone |
| 1698 | 2422 025 18249 | 45P Female |
| 8103▲ | 3139 131 03511 | FFC Foil 45P |
| 8698▲ | 3139 131 03511 | FFC Foil 45P |

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| | | |
|---|---|---|
| 2101 | 4822 126 14241 | 330pF 0603 50V |
| 2102 | 4822 124 23002 | 10µF 16V |
| 2103 | 4822 126 14241 | 330pF 0603 50V |
| 2104 | 3198 017 41050 | 1µF 10V 0603 |
| 2105 | 4822 126 14241 | 330pF 0603 50V |
| 2106 | 4822 124 23002 | 10µF 16V |
| 2107 | 4822 126 14241 | 330pF 0603 50V |
| 2108 | 3198 017 41050 | 1µF 10V 0603 |
| 2109 | 4822 126 13881 | 470pF 5% 50V |
| 2110 | 4822 126 13881 | 470pF 5% 50V |
| 2111 | 4822 126 13881 | 470pF 5% 50V |
| 2112 | 4822 126 13881 | 470pF 5% 50V |
| 2119 | 3198 017 41050 | 1µF 10V 0603 |
| 2126 | 4822 124 23002 | 10µF 16V |
| 2127 | 4822 126 14241 | 330pF 0603 50V |
| 2128 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2129 | 4822 126 14241 | 330pF 0603 50V |
| 2130 | 4822 124 23002 | 10µF 16V |
| 2131 | 4822 126 14241 | 330pF 0603 50V |
| 2132 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2133 | 4822 126 14241 | 330pF 0603 50V |
| 2134 | 4822 126 13881 | 470pF 5% 50V |
| 2135 | 4822 126 13881 | 470pF 5% 50V |
| 2136 | 4822 126 13881 | 470pF 5% 50V |
| 2137 | 4822 126 13881 | 470pF 5% 50V |
| 2138 | 3198 017 41050 | 1µF 10V 0603 |
| 2147 | 4822 124 23002 | 10µF 16V |
| 2148 | 4822 124 23002 | 10µF 16V |
| 2152 | 4822 126 14241 | 330pF 0603 50V |
| 2153 | 4822 126 14241 | 330pF 0603 50V |
| 2155 | 4822 126 14241 | 330pF 0603 50V |
| 2157 | 4822 126 14241 | 330pF 0603 50V |
| 2169 | 4822 124 23002 | 10µF 16V |
| 2683 | 3198 017 41050 | 1µF 10V 0603 |
| 2684 | 3198 017 41050 | 1µF 10V 0603 |
| 2687 | 3198 017 41050 | 1µF 10V 0603 |
| 2693 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2694 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2698 | 2020 552 94427 | 100pF 5% 50V |
| 2699 | 2020 552 94427 | 100pF 5% 50V |
| 2700 | 4822 126 14241 | 330pF 0603 50V |
| 2701 | 4822 126 14241 | 330pF 0603 50V |
| 2702 | 4822 126 14241 | 330pF 0603 50V |
| 2703 | 4822 126 14241 | 330pF 0603 50V |
| 2704 | 4822 126 14241 | 330pF 0603 50V |
| 2705 | 4822 126 14241 | 330pF 0603 50V |

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| | | |
|---|---|---|
| 3101 | 4822 051 30151 | 150Ω 5% 0.062W |
| 3102 | 4822 117 12891 | 220kΩ 1% |
| 3103 | 4822 051 30223 | 22kΩ 5% 0.062W |
| 3104 | 4822 117 12925 | 47kΩ 1% 0.063W 0603 |
| 3105 | 4822 051 30151 | 150Ω 5% 0.062W |
| 3106 | 4822 117 12891 | 220kΩ 1% |
| 3107 | 4822 117 12925 | 47kΩ 1% 0.063W 0603 |
| 3108 | 4822 051 30223 | 22kΩ 5% 0.062W |
| 3109 | 4822 051 30759 | 75Ω 5% 0.062W |
| 3110 | 4822 051 30331 | 330Ω 5% 0.062W |
| 3111 | 4822 051 30273 | 27kΩ 5% 0.062W |
| 3112 | 4822 051 30682 | 6.8Ω 5% 0.062W |
| 3113 | 4822 051 30759 | 75Ω 5% 0.062W |
| 3114 | 4822 051 30331 | 330Ω 5% 0.062W |
| 3115 | 4822 051 30759 | 75Ω 5% 0.062W |
| 3116 | 4822 051 30331 | 330Ω 5% 0.062W |
| 3117 | 4822 051 30331 | 330Ω 5% 0.062W |
| 3118 | 4822 051 30759 | 75Ω 5% 0.062W |
| 3119 | 4822 051 30689 | 68Ω 5% 0.063W 0603 |
| 3121 | 4822 051 30759 | 75Ω 5% 0.062W |
| 3122 | 4822 051 30331 | 330Ω 5% 0.062W |
| 3123 | 4822 051 30102 | 1kΩ 5% 0.062W |
| 3124 | 4822 117 13632 | 100kΩ 1% 0603 0.62W |
| 3125 | 4822 117 13632 | 100kΩ 1% 0603 0.62W |
| 3126 | 4822 117 12891 | 220kΩ 1% |
| 3127 | 4822 051 30151 | 150Ω 5% 0.062W |
| 3128 | 4822 117 12925 | 47kΩ 1% 0.063W 0603 |
| 3129 | 4822 051 30223 | 22kΩ 5% 0.062W |
| 3130 | 4822 117 12891 | 220kΩ 1% |
| 3131 | 4822 051 30151 | 150Ω 5% 0.062W |
| 3132 | 4822 117 12925 | 47kΩ 1% 0.063W 0603 |
| 3133 | 4822 051 30223 | 22kΩ 5% 0.062W |
| 3134 | 4822 051 30682 | 6.8Ω 5% 0.062W |
| 3135 | 4822 051 30273 | 27kΩ 5% 0.062W |
| 3136 | 4822 051 30331 | 330Ω 5% 0.062W |
| 3137 | 4822 051 30759 | 75Ω 5% 0.062W |
| 3138 | 4822 117 13632 | 100kΩ 1% 0603 0.62W |
| 3139 | 4822 117 13632 | 100kΩ 1% 0603 0.62W |
| 3140 | 4822 051 30689 | 68Ω 5% 0.063W 0603 |
| 3141 | 4822 051 30102 | 1kΩ 5% 0.062W |
| 3142 | 4822 051 30331 | 330Ω 5% 0.062W |
| 3143 | 4822 051 30759 | 75Ω 5% 0.062W |
| 3152 | 4822 117 12891 | 220kΩ 1% |
| 3153 | 4822 051 30151 | 150Ω 5% 0.062W |
| 3155 | 4822 117 12891 | 220kΩ 1% |
| 3156 | 4822 051 30151 | 150Ω 5% 0.062W |
| 3157 | 4822 051 30339 | 33Ω 5% 0.062W |
| 3158 | 4822 051 30102 | 1kΩ 5% 0.062W |
| 3169 | 4822 051 30479 | 47Ω 5% 0.062W |
| 3681 | 4822 051 30008 | Jumper 0603 |
| 3682 | 4822 051 30103 | 10kΩ 5% 0.062W |
| 3683 | 4822 051 30759 | 75Ω 5% 0.062W |
| 3684 | 4822 051 30759 | 75Ω 5% 0.062W |
| 3686 | 4822 051 30008 | Jumper 0603 |
| 3687 | 4822 051 30759 | 75Ω 5% 0.062W |
| 3691 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3693 | 4822 051 30103 | 10kΩ 5% 0.062W |
| 3694 | 4822 051 30103 | 10kΩ 5% 0.062W |
| 3696 | 4822 051 30103 | 10kΩ 5% 0.062W |
| 3697 | 4822 051 30103 | 10kΩ 5% 0.062W |
| 3698 | 4822 051 30223 | 22kΩ 5% 0.062W |
| 3699 | 4822 051 30223 | 22kΩ 5% 0.062W |
| 3700 | 4822 117 12925 | 47kΩ 1% 0.063W 0603 |
| 3701 | 4822 117 12925 | 47kΩ 1% 0.063W 0603 |
| 3704 | 4822 051 30103 | 10kΩ 5% 0.062W |
| 3705 | 4822 051 30103 | 10kΩ 5% 0.062W |
| 3710 | 4822 051 30102 | 1kΩ 5% 0.062W |
| 4106 | 4822 051 30008 | Jumper 0603 |

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|---|---|---|
| 5683 | 2422 549 45333 | Bead 120Ω 100MHz |
| 5684 | 2422 549 45333 | Bead 120Ω 100MHz |
| 5687 | 2422 549 45333 | Bead 120Ω 100MHz |
| 5692 | 2422 549 45333 | Bead 120Ω 100MHz |

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|---|---|---|
| 6121 | 4822 130 11416 | PDZ6.8B |
| 6143 | 4822 130 11416 | PDZ6.8B |
| 6691 | 4822 130 11397 | BAS316 |
| 6692 | 4822 130 11397 | BAS316 |

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|---|---|---|
| 7119 | 5322 130 60159 | BC846B |
| 7138 | 5322 130 60159 | BC846B |
| 7693 | 9322 145 26668 | M24C02-WMN6 |
| 7694 | 9322 145 26668 | M24C02-WMN6 |

## Front Interface + Keyboard [J]

### Various

| | | |
|---|---|---|
| 0041 | 3139 124 60061 | Lens |
| 8704 | 3139 131 03781 | Cable 4P |

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|---|---|---|
| 2540 | 4822 124 41643 | 100µF 20% 16V |
| 2541 | 3198 017 41050 | 1µF 10V 0603 |

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| | | |
|---|---|---|
| 3540 | 4822 051 30331 | 330Ω 5% 0.062W |
| 3542 | 4822 051 30221 | 220Ω 5% 0.062W |
| 3544 | 4822 051 30332 | 3.3Ω 5% 0.062W |
| 3547 | 3198 021 32250 | 2.2MΩ 5% 0603 |
| 4540 | 4822 051 30008 | Jumper 0603 |
| 4541 | 4822 051 30008 | Jumper 0603 |
| 4542 | 4822 051 30008 | Jumper 0603 |

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|---|---|---|
| 6540 | 9322 192 35676 | SPR-325MVW |

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|---|---|---|
| 7540 | 4822 130 60373 | BC856B |
| 7541 | 5322 130 60159 | BC846B |
| 7542 | 5322 130 60159 | BC846B |
| 7543 | 9322 190 34682 | BPW34 |

## Pixel Plus Panel [PP]

### Various

| | | |
|---|---|---|
| 1001 | 2422 025 17192 | Connector 9p m |
| 1002 | 2422 025 18314 | Connector 20p m v 1.25 |
| 1003 | 2422 025 18314 | Connector 20p m v 1.25 |
| 1206 | 2422 549 45325 | Bead 67Ω at 100MHz |
| 1207 | 2422 549 45325 | Bead 67Ω at 100MHz |
| 1209 | 2422 549 45325 | Bead 67Ω at 100MHz |
| 1210 | 2422 549 45325 | Bead 67Ω at 100MHz |
| 1211 | 2422 549 45325 | Bead 67Ω at 100MHz |
| 1403 | 2422 549 45325 | Bead 67Ω at 100MHz |
| 1404 | 2422 549 45325 | Bead 67Ω at 100MHz |
| 1405 | 2422 549 45325 | Bead 67Ω at 100MHz |
| 1406 | 2422 549 45325 | Bead 67Ω at 100MHz |
| 1407 | 2422 549 45325 | Bead 67Ω at 100MHz |

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| | | |
|---|---|---|
| 2101 | 2020 552 94427 | 100pF 5% 50V |
| 2102 | 2020 552 94427 | 100pF 5% 50V |
| 2103 | 2020 552 94427 | 100pF 5% 50V |
| 2104 | 2020 552 94427 | 100pF 5% 50V |
| 2105 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2106 | 2020 552 94427 | 100pF 5% 50V |
| 2107 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2108 | 2022 552 05614 | 1µF 10% 6V3 0603 |
| 2110 | 3198 016 31020 | 1nF 25V 0603 |
| 2112 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2113 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2114 | 2022 552 05682 | 2.2µF 10% 6.3V |
| 2115 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2116 | 2022 552 05682 | 2.2µF 10% 6.3V |
| 2121 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2122 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2123 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2124 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2130 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2131 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2132 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2133 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2134 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2135 | 2022 552 05682 | 2.2µF 10% 6.3V |
| 2136 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2139 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2140 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2141 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2142 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2143 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2144 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2145 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2146 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2147 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2148 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2149 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2150 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2201 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2202 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2203 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2204 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2205 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2206 | 3198 016 31080 | 1pF 25% 50V 0603 |
| 2207 | 3198 016 31080 | 1pF 25% 50V 0603 |
| 2208 | 3198 016 31080 | 1pF 25% 50V 0603 |
| 2209 | 3198 016 31080 | 1pF 25% 50V 0603 |
| 2210 | 3198 016 31080 | 1pF 25% 50V 0603 |
| 2211 | 3198 016 31080 | 1pF 25% 50V 0603 |
| 2212 | 3198 016 31080 | 1pF 25% 50V 0603 |
| 2213 | 3198 016 31080 | 1pF 25% 50V 0603 |
| 2214 | 3198 016 31080 | 1pF 25% 50V 0603 |
| 2215 | 3198 016 31080 | 1pF 25% 50V 0603 |
| 2216 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2401 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2402 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2403 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2404 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2405 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2406 | 3198 016 31080 | 1pF 25% 50V 0603 |
| 2407 | 3198 016 31080 | 1pF 25% 50V 0603 |
| 2408 | 3198 016 31080 | 1pF 25% 50V 0603 |
| 2409 | 3198 016 31080 | 1pF 25% 50V 0603 |
| 2410 | 3198 016 31080 | 1pF 25% 50V 0603 |
| 2411 | 3198 016 31080 | 1pF 25% 50V 0603 |
| 2412 | 3198 016 31080 | 1pF 25% 50V 0603 |
| 2413 | 3198 016 31080 | 1pF 25% 50V 0603 |
| 2414 | 3198 016 31080 | 1pF 25% 50V 0603 |
| 2415 | 3198 016 31080 | 1pF 25% 50V 0603 |
| 2419 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2502 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2503 | 4822 124 12095 | 100µF 20% 16V |
| 2504 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2505 | 2022 552 05682 | 2.2µF 10% 6.3V |
| 2508 | 4822 122 33761 | 22pF 5% 50V |
| 2509 | 4822 122 33761 | 22pF 5% 50V |
| 2515 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2516 | 4822 122 33761 | 22pF 5% 50V |
| 2520 | 4822 122 33761 | 22pF 5% 50V |

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|---|---|---|
| 2522 | 5322 126 11583 | 10nF 10% 50V 0603 |

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|---|---|---|
| 3101 | 4822 051 30103 | 10kΩ 5% 0.062W |
| 3102 | 4822 051 30479 | 47Ω 5% 0.062W |
| 3103 | 4822 051 30479 | 47Ω 5% 0.062W |
| 3104 | 4822 051 30103 | 10kΩ 5% 0.062W |
| 3105 | 4822 051 30103 | 10kΩ 5% 0.062W |
| 3106 | 4822 051 30103 | 10kΩ 5% 0.062W |
| 3107 | 4822 051 30103 | 10kΩ 5% 0.062W |
| 3108 | 4822 051 30103 | 10kΩ 5% 0.062W |
| 3109 | 4822 051 30103 | 10kΩ 5% 0.062W |
| 3110 | 4822 051 30479 | 47Ω 5% 0.062W |
| 3111 | 4822 051 30103 | 10kΩ 5% 0.062W |
| 3112 | 4822 051 30103 | 10kΩ 5% 0.062W |
| 3113 | 4822 051 30103 | 10kΩ 5% 0.062W |
| 3114 | 4822 051 30479 | 47Ω 5% 0.062W |
| 3115 | 4822 051 30102 | 1kΩ 5% 0.062W |
| 3116 | 4822 051 30333 | 33kΩ 5% 0.062W |
| 3117 | 4822 051 30103 | 10kΩ 5% 0.062W |
| 3118 | 4822 051 30333 | 33kΩ 5% 0.062W |
| 3122 | 4822 051 30479 | 47Ω 5% 0.062W |
| 3125 | 4822 051 30479 | 47Ω 5% 0.062W |
| 3202 | 4822 051 30472 | 4.7Ω 5% 0.062W |
| 3204 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3207 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3210 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3213 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3216 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3402 | 4822 051 30479 | 47Ω 5% 0.062W |
| 3403 | 4822 051 30102 | 1kΩ 5% 0.062W |
| 3406 | 4822 051 30472 | 4.7Ω 5% 0.062W |
| 3407 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3421 | 4822 051 30479 | 47Ω 5% 0.062W |
| 3510 | 4822 051 30472 | 4.7Ω 5% 0.062W |
| 3512 | 4822 051 30103 | 10kΩ 5% 0.062W |
| 3513 | 4822 051 30102 | 1kΩ 5% 0.062W |
| 3515 | 4822 051 30472 | 4.7Ω 5% 0.062W |
| 3519 | 4822 051 30472 | 4.7Ω 5% 0.062W |
| 3520 | 4822 051 30472 | 4.7Ω 5% 0.062W |

| | | |
|---|---|---|
| 5101 | 4822 157 11716 | Bead 30Ω at 100MHz |
| 5104 | 4822 157 11716 | Bead 30Ω at 100MHz |
| 5105 | 4822 157 11716 | Bead 30Ω at 100MHz |
| 5106 | 4822 157 11716 | Bead 30Ω at 100MHz |
| 5107 | 4822 157 11716 | Bead 30Ω at 100MHz |
| 5201 | 4822 157 11716 | Bead 30Ω at 100MHz |
| 5202 | 4822 157 11716 | Bead 30Ω at 100MHz |
| 5203 | 4822 157 11716 | Bead 30Ω at 100MHz |
| 5401 | 4822 157 11716 | Bead 30Ω at 100MHz |
| 5402 | 4822 157 11716 | Bead 30Ω at 100MHz |
| 5403 | 4822 157 11716 | Bead 30Ω at 100MHz |

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|---|---|---|
| 7101 | 9322 200 14671 | EP1C12F256C8 |
| 7102 | 3122 357 00601 | Softw. (See Prod.Surv.) |
| 7108 | 2722 171 08825 | Xtal 14.31818MHz 15pF SMD |
| 7110 | 9340 425 20115 | BC847BS |
| 7201 | 9322 210 59668 | THC63LVDF84B |
| 7403 | 9322 201 03668 | THC63LVDM83R |
| 7501 | 9322 170 14668 | LF15ABDT |
| 7504 | 9322 190 77685 | SI2307DS |
| 7505 | 4822 130 11155 | PDTC114ET |

# 11. Revision List

Manual xxxx xxx xxxx.0
- First release.

Manual xxxx xxx xxxx.1
The manual is updated with information for models with Pixel Plus. This information is only applicable for xxPF9956 models.
- Chapter: Mechanical Instructions, added Pixel Plus Panel removal instructios.
- Chapter: Service Modes, Error Codes, and Fault Finding, some layout issues fixed.
- Chapter: Block Diagrams, Testpoint Overvies, and Waveforms: Pixel Plus Panel added.
- Chapter: Circuit Diagrams and PWB Layouts: Pixel Plus Panel added.
- Chapter: Circuit Descriptions, Abbreviations List, and IC Data Sheets: Pixel Plus Panel descriptions added.
- Chapter: Spare Parts list, Pixel Plus Panel added.